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Memoirs of the California Academy of Sciences Number 23

BEYOND *Art*

Pleistocene Image and Symbol

Edited by
Margaret W. Conkey, Olga Soffer,
Deborah Stratmann & Nina G. Jablonski

Wattis Symposium Series in Anthropology

MEMOIRS OF THE CALIFORNIA ACADEMY OF SCIENCES, NUMBER 23

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Beyond Art: Pleistocene Image and Symbol

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Beyond Art: Pleistocene Image and Symbol

TABLE OF CONTENTS

Page

Preface ix

Acknowledgments xi

Studying Ancient Visual Cultures,
by *Olga Soffer and Margaret W. Conkey* 1

Section I. Analytical Methods: From Dating to
Technologies of Image Making 17

Paleolithic Marks: Archaeometric Perspectives
by *Alan Watchman* 19

New Laboratory Techniques and Their Impact
on Paleolithic Cave Art, by *Jean Clottes* 37

Paleolithic Image Making and Symboling in Europe
and the Middle East: A Comparative Review,
by *Alexander Marshack* 53

Substantial Acts: From Materials to Meaning in Upper
Paleolithic Representation, by *Randall White* 93

Section II. Approaches to the "Why's" of
Presence and Absence 123

The Power of Pictures, by *Iain Davidson* 125

Symbolic Expressions in Later Prehistory of the Levant:
Why are They So Few? by *Ofer Bar-Yosef* 161

When the Beasts Go Marchin' Out! The End of
Pleistocene Art in Cantabrian Spain,
by *Manuel R. González Morales* 189

Section III. Interpreting Regional Imagery in the European Upper Paleolithic 201

Art of the Light and Art of the Depths, by *Jean Clottes* . . . 203

Carving, Painting, Engraving: Problems with the Earliest Italian Design, by *Margherita Mussi and Daniela Zampetti* 217

The Mutability of Upper Paleolithic Art in Central and Eastern Europe: Patterning and Significance, by *Olga Soffer* 239

Section IV. The Interpretive Process 263

Places of Art: Art and Archaeology in Context, by *Silvia Tomásková* 265

Archaeological Signatures of the Social Context of Rock Art Production, by *Andrée Rosenfeld* 289

Processions and Groups: Human Figures, Ritual Occasions and Social Categories in the Rock Paintings of the Western Cape, South Africa, by *John Parkington and Anthony Manhire* 301

Harnessing the Brain: Vision and Shamanism in Upper Paleolithic Western Europe, by *J.D. Lewis-Williams* . . . 321

Beyond Art and Between the Caves: Thinking About Context in the Interpretive Process, by *Margaret W. Conkey* 343

Index 369

Preface

This volume takes its name from the title of the Second Paul L. and Phyllis Wattis Foundation Endowment Symposium, which took place at the California Academy of Sciences on March 11, 1995. The primary inspiration for the symposium came from Deborah Stratmann, then of the Academy's Department of Anthropology. Her keen interest in the imagery created by humans of the latest Pleistocene and Holocene was coupled with her recognition that the last 20 years had witnessed major changes in our views of this imagery. New theoretical and technological developments had made possible new investigations of the ages, raw materials and environmental contexts of these images, and had brought into question our conception of them as "art." Deborah's interests were matched by those of Phyllis Wattis, who had herself spent many enjoyable hours in years past crawling through caves and lying on her back examining cave art in France. Together, they made *Beyond Art* happen.

After the symposium, it was decided that it would be fitting and most fruitful to combine into one volume the proceedings of the Wattis symposium with those of the First Oregon Archaeological Retreat, which was organized by Meg Conkey and Olga Soffer and which took place in 1993. The result is a volume which epitomizes the philosophy of the Wattis Foundation Symposia in Anthropology, namely, one that brings diverse theoretical and methodological approaches to bear on a significant issue in anthropology.

Nina G. Jablonski
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June 12, 1997

Acknowledgments

It is next to impossible to appropriately acknowledge all individuals who have assisted, aided, and abetted in the production of an edited volume such as this one – if for no other reason than because there have been so many. Some, however, clearly stand out in their contribution. Amongst these, first and foremost are Jean and Ray Auel without whose generous hospitality there would never have been the First Oregon Archaeological Retreat where this volume began. It was a memorable experience that the participants will never forget – including the nouveau Oregonian combination of pizza and vintage Dom Perignon. Next, we wish to thank the California Academy of Sciences for independently confirming that the recent research on this topic of late Pleistocene image and symbol had reached a critical point for a lively and informed symposium. The Wattis Endowment, the many staff people and, most recently, the active and supportive role played in bringing this volume to fruition by Anthropology Chair Nina Jablonski and the Scientific Publications Committee must be heralded. This volume owes its physical existence to the diligent and highly skilled efforts of Nancy Gee, who performed the typesetting, Katie Martin, who assisted in copy editing, and Vivian Young, who designed the cover and dust jacket. We also thank Charlene Woodcock of the University of California Press for arranging that the Press would market the volume.

Finally, we extend our heartfelt thanks to the outside reviewers whose insightful comments and detailed commentaries aided us enormously in sharpening our thinking and in improving the final product before you. For a project to have four coeditors and more than a dozen different contributors on four different continents has been a challenge, and we thank everyone for their willingness to put together a combined volume that we believe can begin to do justice to an enormously rich and potentially revealing inquiry into the symbolic and material worlds of ancient humans.

Studying Ancient Visual Cultures

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The Background to the Volume

The volume before you addresses the appearance and distribution of images and symbols encoded in material culture in prehistory – something collectively termed prehistoric or Paleolithic "art." This topic has, certainly, received a great deal of attention and been a subject of much research with ensuing publications. A century of study, however, has not produced a definitive theory about this "art," but rather has brought forth a number of conflicting claims. We address some of the factors responsible for this state of affairs below, offer our own suggestions on how to advance our understanding of prehistoric imagery, and begin doing so by decoupling this body of archaeological evidence about past lifeways from its categorization as "art."

We do so because, as we argue below, such initial categorization was both based on unwarranted assumptions and constrained our understanding of the subject matter. Because of this, we term this corpus of data as prehistoric imagery and, when using the term, put "art" in quotation marks.

Our growing dissatisfaction with past approaches to prehistoric imagery, raised against both insufficient attention directed to concrete times and places when the images were produced and used, against unwarranted uniformitarian assumptions, and against a broadly ahistoric and often decontextualized frame of reference, led us to organize two meetings to examine what we call, broadly speaking, prehistoric imagery from a more archaeological perspective. Specifically, we argued that there was

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a need to examine this category of archaeological artifacts using an archaeological frame of reference. After all, we do have evidence – usually very material evidence – with which to construct context, and we do have an increasing repertoire of both method and theory that is applicable to this enterprise. To begin this, thanks to the generosity of Jean and Ray Auel, we gathered a group of specialists at the first Oregon Archaeological Retreat in April, 1993 for two days of presenting data and arguing over their significance. This was followed directly by a session at the 58th Annual Meeting of the Society for American Archaeology to examine "What Means this Art? – Late Pleistocene 'Creative Explosion' in the Old World."

Independently, a symposium was being planned by the California Academy of Sciences, held in March 1995, which involved many of the same participants. As described in the Preface the core of common issues and the range of approaches and regions naturally led to the idea of a more robust publication that would combine the participants from all events. This is the result of that endeavor.

Prehistoric Imagery vs. Prehistoric "Art"

The discovery, beginning in 1879, of painted caves in Spain and France, depicting monochrome and polychrome images of the real and of the imagined Pleistocene bestiary, together with enigmatic signs, was followed by much debate about their antiquity (Bahn & Vertut 1988). Once the official scientific recognition was proclaimed in 1902 that these images could be accepted as the works of Upper Paleolithic peoples, the remainder of the century saw not only the discovery of large numbers of examples of Paleolithic images, both parietal and portable in form, but also a myriad of approaches to studying them (Conkey 1987, 1993). Most of these approaches began by classifying these images as "art." Yet were they?

Although most of us would agree that many of these images are indeed aesthetically pleasing, to call them "art" is both misleading and limiting. There are two assumptions behind the term "art" that are particularly troublesome. First, as defined in the past century, art is a cultural phenomenon that is assumed to function in what we recognize and even carve off separately as the aesthetic sphere. There are long-standing debates, even within the western intellectual and cultural traditions about the definition(s) of "art" (*e.g.*, Kristeller 1980; see also Conkey 1997:174-176). This aesthetic function is something that we cannot assume to have been the case in prehistory. In fact, ethnographic data from nonwestern cultures clearly show us otherwise; most such cultures do not make the kinds of distinctions that we do, they do not have an equivalent term for "art" nor do they often differentiate the aesthetic from the symbolic from the sacred from the utilitarian, and so on. What we can say about this early imagery is that it was created right from within the mundane world (after Alpers in Schoch 1988). The so-called "artists" of 30,000 years ago did not discover something that is true for all humans at all times in all places – as in transcendent imagery and art. Thus, as Tomásková suggests, many of the traditional approaches of art history are not appropriate to the interpretation of prehistoric remains because we cannot assume that their primary function was aesthetic.

The equally troubling second assumption behind the term "art" as applied to these very early visual cultures is this idea that it is somehow transcendent and therefore provides us with transcendent values. To claim Lascaux, for example, as the "first masterpiece" of human art history reveals more about our cultural categories and constructions than about the contexts of prehistoric social action within which the

production of such imagery as that at Lascaux took place and had meanings. While it may be a significant contribution to contemporary life that we can find and draw upon some assumed transcendent values from this imagery, nonetheless, as the ensuing chapters clearly reaffirm, there is more to be gained from inquiry into this prehistoric and early imagery. If anything, the view that it is transcendent has limited not promoted deeper and more contextualized understandings (for a discussion, see Conkey 1995).

By classifying prehistoric imagery as "art," our predecessors brought with them much unwarranted baggage. Before we had the global perspectives presented in this volume, interpretation had been dominated by what researchers thought about the Paleolithic imagery of southwestern Europe. For decades the richly preserved images on the cave walls there were taken as "the"origins of art. This Euro-focused view of human evolution – with the pinnacle of symbolic expression manifest there – has long been tangled up in the self-congratulatory history of the achievements of "the West."

From the very beginning of this interpretation, what was implicated was the appearance of modern humans in Europe and the appearance of early art, symbolism, culture and modernity – a modernity marked by painting (itself a well-known hallmark of modernism and of Art in the 18th and 19th centuries). This created a nice example of what Bakhtin (1981) has called an epic chronotrope: an entire period of human life, in this case, was evoked through the trope of the origins of art.

The idea that we can explain human prehistory as part of a progressive evolutionary trajectory is an idea that has now been weakened considerably. We have begun to recognize and accept that the ground on which we stand to represent others in the past is not firm, but more tectonic and shifting (after Clifford 1986:22). The archaeological record tells us that the past has a mosaic rather than a lineal trajectory: we may have anatomically modern humans in Australia before they were in France; we appear to have cohabiting Neanderthals and modern humans, using similar tool kits in the Middle East and moving into the same sites and valleys, and we have early image making in many places (for a discussion, see Klein 1995 with references).

Today, we have refocused our attentions to include other locales, other contexts, other situations and, most importantly, withdrawn from seeing this body of data as representing "art." In doing so we argue that such a catholic view is absolutely crucial in reorienting the entire field of inquiry and interpretation.

The Significance of Image Making

In the contemporary world, regardless of our geographic and/or cultural contexts, we find ourselves surrounded with symbol laden images. They are ubiquitous, but always differentially valued and understood. These images may be three-dimensional objects or two dimensional shapes and designs superimposed on flat surfaces: murals, sculptures, paintings, photography, and the like. Some are located in more public places, while others are sequestered in private spaces. Some of these images are held to be aesthetically pleasing and exhibited as such. Others do not obviously function in the aesthetic domain but nonetheless signify and/or evoke values and beliefs. All of them, however, carry emotionally charged meanings that are more readily apparent to specific individuals and groups of people, and opaque, at best, to others. What is universal to all of us, however, is that we all mark durable objects

with symbols – a behavior strongly associated with anatomically modern humans and a modern human way of life that is embedded in and expressed through culture.

As Geertz (1973) noted, humans traffic in symbols. We make sense of our world by producing a symbolic one that includes real and imaginary creatures, myths, and beliefs. It is, in part, this association of modern humans and material symbolization that makes this phenomenon a historical one – something that came into existence at some point in time and appears not to have existed prior to that.

An Evolutionary Perspective

All people alive today are classified as belonging to a single subspecies, *Homo sapiens sapiens* – anatomically modern beings, whose ancestry as such, in various parts of the world, dates back to between some 125,000 and 40,000 years ago (see Klein 1995, with references). It is this species, and this species alone, which is firmly and unequivocally associated with the habitual and patterned symbolic marking of objects – a practice made manifest in material culture recovered from archaeological sites dating from some 40,000 years ago onward (*e.g.*, Klein 1995; Stringer & Mellars 1989, 1990, with references).

The tenure of our ancestors on Earth, however, goes back much further into the past. Beginning with the deepest time, we know that the last common ancestor of African apes and humans lived some 5-7 million years ago. The oldest known hominids – the australopithecines – were around in Africa from some 4.4 million years ago, but their lifeways probably were only weakly, if at all, mediated by what we know as culture (Klein 1995 with references). The making and using of tools, the first harbinger of technologically assisted existence, something which is essential but not sufficient for a fully human way of life, is in evidence by some 2.3 million years ago and coincident with the appearance of the genus *Homo*. It is the later representatives of this genus who, by about 1 million years ago, expanded the hominid geographic range out of Africa to inhabit as well the southern latitudes of Eurasia.

Tracing their descendants through time down to some 50,000 years ago, we have evidence that they further expanded into the middle latitudes of Europe and Asia, refining their technologies. What we do not see, however, except in a small handful of highly contested enigmatic nonutilitarian objects, sometimes overmarked with lines (see Bendarik 1996 with references), is the systematic and habitual production of symbolically marked items of material culture, *i.e.*, images. The reasons for their absence is a matter of heated debate, but generally interpreted to mean that life was organized differently than it is today or in the historic past (for this debate see the Davidson and Marshack chapters, with their bibliographies, this volume). While the absence of preserved material remains of accepted symbolic significance is not sufficient to negate that our distant ancestors had symbolic capacities and activities, it is the appearance, forms, and contexts of those symbolic manifestations that have preserved what provides a crucial baseline.

It is this practice of symbolic organization and mediation of life, of arbitrarily ordering matter and energy, which signals the advent of fully modern way of life – one embedded in and shaped by culture, dependent upon the making of meaning. When we look back into the millennia over which anatomically modern humans existed, we see evidence for these practices in material form all across the then – occupied world at about 40,000 BP (before present) from ostrich eggshell beads in Kenya dating to some 39,000 years ago (Ambrose 1994), painting on plaquettes in

southern Africa at 26,000 years ago (Wendt 1976), parietal art in Australia that is possibly considerably more than 30,000 years old (but see Davidson, Rosenfeld, & Watchman, this volume) to sculptured figurines made out of ivory in Austria and Germany dated to some 32,000 BP (Davidson, this volume), to, finally, possibly the best known examples, cave paintings in the Franco-Cantabrian region of Europe, some of which are now dated to 30,000 years ago (Clottes *et al.* 1995).

There is much debate in the literature about the proliferation of image-making in a great variety of media as documented in the archaeological record from some 40,000 BP onward. Most of the attention has been directed toward the origin of this proliferation, and to what has often been termed "The Creative Explosion." The production and use of personal adornments, of small animal and human figurines, of decoration on a myriad of implements made of antler, bone, ivory, and stone, and of painting, engraving, and sculpting on the walls of rock shelters and caves.

While some have argued that image making may well have gone on prior to this marked appearance, although executed in perishable media that did not survive through the ages, this is a problematic argument for archaeologists, and even an unacceptable one, in that it is empirically untenable. Without new lines of evidence, the idea of a prior and equally rich material culture cannot be supported nor disproved. Rather than focusing on a hypothetical scenario that, at least for the time being, cannot be addressed, what we urge here is that we do more with the material remains that we do have.

People have tried to answer the question of "why art at some 40,000 years ago and not before?" in a number of ways, most of which come down to hypotheses about the advent of some modern capacity for symboling among anatomically modern people, from the invention of symbol-based language to proposed neurological changes or some sort of "point mutation." These explanations are intriguing but ultimately unsatisfactory for a number of reasons. By equating the proliferation of image making with the advent of the capacity to do so, such explanations disregard at least three things: 1) the sparse and ambiguous presence of some images considerably prior to 40,000 BP; 2) the spatial discontinuity in image making across regions occupied by equally modern humans (*e.g.,* the abundance of Upper Paleolithic images in the Franco-Cantabrian regions vs. their sparseness in the Levant, Africa and Asia); and 3) the temporal and even spatial discontinuities in the production of images within the different regions (*e.g.,* the virtual disappearance of image making in the Franco-Cantabrian region with the advent of the Holocene *vs.* its proliferation in the Levant at the same time). Furthermore, it is now clear that this image making cannot be equated with the mere biological phenomenon of *Homo sapiens sapiens,* because apparently our anatomically modern ancestors were present in Africa and the Middle East for as many as 60,000 years before the notable material repertoire appears in archaeological sites.

We suggest that there is a poor fit between explanations arguing that image making appears when it does because of some new capacity for this behavior and the data on hand because such hypotheses conflate two components of behavior. The two are *capacity* and *performance*, and while the first is necessary for the second, the second need not necessarily follow the first – it may, or may not, depending on contextual circumstances (Soffer 1994, 1995). Making this distinction, after Vygotsky (1986), and evaluating each component against the archaeological record appears to indicate that the capacity for image making may have been present among the ancestors of fully modern people. The presence of admittedly few unique pieces from Middle Paleolithic and possibly earlier contexts suggests that the *capacity* for making and using

such objects could well have been in place. What was different prior to the Upper Paleolithic or its African equivalent, the Late Stone Age, was that this capacity was not regularly or routinely exercised. What was absent, then, was what we have termed *performance,* the habitual use of the capacity in patterned behavior. What was absent were the social and cultural contexts within which such material practice would have been efficacious and would have had appropriate meanings. Such a perspective requires us to begin examining the circumstances under which image making becomes habitual, an approach that can help us understand the temporal and regional discontinuities in the global record.

Although the debate over origins will not readily go away, this volume focuses on the dynamic and variable nature of early image making for two reasons. First, it is only now that researchers are beginning to document and interpret the evidence on a more global scale, with an eye towards understanding the contexts and histories of regional and local manifestations. Second, to probe and understand the range and variability of the earliest accepted image making is crucial to the task of inquiring into how and under what circumstances such material symbolization came into habitual use.

The Historical Context

As we noted in the beginning of this chapter, the acceptance of the antiquity of prehistoric imagery was followed by numerous approaches to its study. While each region of the world with prehistoric images has experienced its own traditions of research, here we focus on the research conducted on the classic region of Franco-Cantabrian cave art and do so to provide a glimpse into the efforts and problems to date, and how the approaches brought together in this volume might begin to redress these and to reconceptualize what we can do.

The first broad approach, and the one that has dominated most of the discussion to date, was directed towards deciphering the meaning of the imagery. We direct readers interested in the history of this research to such works (in English) as Bahn & Vertut (1988), Sieveking (1979), Leroi-Gourhan (1965, 1982) or Ucko & Rosenfeld (1967) (see also Delporte 1990, but in French). The net result of this avenue of research has provided nearly as many explanations for the meaning of this category of material culture as scholars addressing the subject, *e.g.,* totemism and sympathetic hunting magic, initiation rites, fertility cults, the gendered structuring of culture, aesthetic sensibilities, erotic fantasies or achievements, self-representations at different stages of life, *etc.*, each with claims to being the correct one. There are many problems with an approach that seeks "the" meaning(s), given that an archaeology of meaning is understandably fraught with challenges that come from many sources: undeveloped theoretical approaches, partial evidence, methods that are still experimental, and, most importantly, the extreme difficulty of eliciting meaning for "deep prehistory" for whom we have no ethnographic, ethnohistoric or textual anchors.

These past searches for meaning began with unjustified uniformitarian assumptions that some meanings are universal or transcendent. This, however, is negated by the very essence of symbols, namely, their meaning(s) is arbitrary and culturally determined. Furthermore, researchers tried to explain the entire corpus of imagery – made over some 25,000 years in a variety of geographic locales and in a multiplicity of media – by reference to a single overarching account, such as sympathetic hunting magic (for a discussion, see Conkey 1987, 1993, 1996). We know now

that cultural meanings do not work this way: They are not an eternal static construct, but bounded in time and to context.

A second approach, heavily influenced by the writings of structuralists, also looked for meaning by scrutinizing the patterning of images (see, for example, Leroi-Gourhan 1965, 1982). It assumed that the patterning had its sources in the structure of human cognition, which was seen as universal. Leaving aside the controversial issues dealing with the nature of cognition, the main methodological weaknesses in this approach, which analyzed the structure of a presumed composition, were that it took as a given that the images indeed are part of a composition that: a) has integrity, and b) was created instantly or over a very short period of time. This, as Clottes (this volume), among others, demonstrates, is clearly something that we can neither assume nor demonstrate (also see Conkey 1989).

The third broad approach to the Franco-Cantabrian Paleolithic art, one which saw it as a medium for the transmission of information, also paid little attention to chronology. Using information theory as its basis, some scholars argued that all images carried messages between the creators of the images and their viewers and users. This perspective fit well with archaeological approaches that saw human adaptations as being about obtaining matter, energy, and information (see Gamble 1991 with references). While many new insights have been gained from focusing on Paleolithic images as signifiers – part of the processes by which humans use images and the material world to situate themselves in their social and symbolic worlds – many of these approaches failed to contextualize the imagery in time and place. Specifically, scholars rarely asked either about the "referential context(s) of social action" (after Hodder 1982:16) or about what might have made these specific images meaningful to their makers and users. If we accept the idea that what imagery does is to "galvanize the production of meanings" (after Bryson 1983:xiii), the contextual features must be closely considered in specific relation to attributes and aspects of the imagery itself.

Our predecessors in the interpretive process of Paleolithic imagery reached their own solutions, but one generation's solutions often become the next generation's problems or challenges. The history of the study of early human imagery is one that we are inevitably caught up in. We can neither go back nor extricate ourselves from the histories of interpretation that have become a part of interpretation itself. With each new generation, or even with each new study, we are adding a layer to what is a veritable palimpsest of understandings and of interpretations, and we are enmeshed in that palimpsest.

The Perspective of this Volume

As archaeologists, we saw that our past approaches were not using the images in their local and historical contexts to understand the wider phenomena of human material symbolization and of image making as material practice in specific settings. The approach we advocate and the one that is reflected in this volume, is to examine prehistoric images as we would any category of archaeological artifacts. This involves a dual look that includes a study of the artifacts themselves as well as the context in which they were made and used.

We asked our authors to examine one of the components of the emerging, more complex interpretive equation. When focusing on the images themselves and examining a number of possible variables (*e.g.*, the aesthetics involved in their production,

the technology used and technological choices made, the possible meanings that the images might have had for their users or the relationship between the creation of an image and its meaning) we asked for rigorous patterning and, if possible, converging lines of evidence. In examining the context(s) of production and use of varied symbolic repertoires, we encouraged studies to take up the chronology involved in the production of the record on hand, to examine the patterning, if any, in the distribution of the images, and finally, to investigate any associations between the image and the medium used for its expression.

We also sought explicitly regional approaches, so that the closer focus of understanding the discontinuous distribution of imagery and the disparate forms and contexts used could be addressed. Within regions we encouraged, where possible, the investigation into variation: temporal, spatial, technological, in materials, and so forth.

Scholars whose works are assembled here see themselves as students of material culture whose work is simultaneously empirical and interpretive. To help with the interpretive part of the endeavor, we borrow widely from social theory to extremely technical scientific methods (such as the x-ray diffraction of pigment composition). In spite of this, we do not offer a definitive scenario about prehistoric imagery. Many of us insist on both the challenges and possibilities of what is a more realistic situation, namely, that archaeological data and the issues we explore are full of ambiguity, and that this is to be exploited (for examples of this in other archaeological subjects see Tringham 1991, Schrire 1995).

In his assessment of a related field, Bryson (1983, especially xiii-xiv) has argued persuasively that art history is a provisional or necessarily incomplete enterprise and that to accept this is a situation that should enable growth, more than signal the limitations of the field. We suggest that the same holds true for the study of early "art." Nothing can arrest the continual transformation of the imagery into meanings, "codes of recognition" circulate constantly through imagery, the viewer is an interpreter, interpretation changes, and we'll never lay claim to absolute knowledge of our object. The archaeology and the interpretation of early "art" is necessarily always provisional.

When we interpret, even the simplest cultural notions that we put forth are intentional creations. Furthermore, as interpreters, we constantly construct ourselves through the others we study. Few people in the audience of early "art" research are there purely to find out about the past, separate and distinct from the present, separate from an inquiry into ourselves and our places in our own cosmological schemes.

We all tell stories and this is the process of interpretation, the process of making inferences from archaeological remains. All of science does this (Terrell 1990). Some tell better stories than others and the agreed-upon stories often change. This volume attests to how some agreed-upon stories are changing and are going to change. Certainly this happens because there are new finds, new data, new facts; but our stories also change because of new assumptions, because new interpreters have taken up the topic, or because of the shifts in the geopolitical frameworks of research.The results of this approach are before you. The ensuing chapters do not purport to be the final word on the subject at hand. To the contrary, we suggest that the approaches to the study of prehistoric images offered in this volume represent promising new directions that have already and will continue to yield robust insights into the question of why and when images are made immortal in permanent media. We hope that the very term, Paleolithic "art," will be redefined and, more importantly, re-conceptualized by these new directions.

The Organization of the Volume

We have divided this volume thematically into four sections, which examine central issues in understanding prehistoric image making. Given that many of the issues considered crosscut these heuristic categories, it is inevitable that the reader will find some overlap between the sections. Thus, for example, questions about the regional distribution of certain categories of images are addressed in more than one section. Similarly, issues about the possible significance and meaning of some of the images necessarily surface in discussions other than those found in the last section of the volume. We have attempted to keep such overlap to a minimum and are certain that our readers will understand that some is unavoidable.

The first section, *Analytical Methods: from Dating to Technologies of Image-Making* discusses recent insights gained from the use of diverse dating methods to establish the chronology of image making, presents results from the application of methods of material science to understanding of how the images were made, as well as insights obtained from a consideration of the production sequences involved in the making of these images.

The past decade has been particularly exciting in terms of the new ways in which images have been studied which have moved our studies beyond questions of identification ("What is it? A horse? A 'sign'?") into the realms of "when" and "how." While many new analytical techniques are both available and seem to work today, we should not expect that they have solved all of our problems. For example, the control of chronology has been a significant interpretative dilemma given that so few of the images on cave walls have been or can be dated directly (see Clottes and Watchman, this volume); in fact, many have suggested that the inclusion of imagery and "art" in mainstream archaeology has been inhibited due to this problem of dating. While new methods of dating and the ability to now date images quite directly has been or enormous boost in both the credibility and kinds of interpretations now possible, nonetheless problems remain. The plethora of chronometric dates available now for some of the Upper Paleolithic sites have shown us that the fundamental issue of chronological resolution is unlikely to be simple and straightforward, and we must continue to complement our increasingly refined techniques for dating with other lines of evidence and inference.

The first two chapters in this section, by Alan Watchman and Jean Clottes respectively, discuss dating techniques and other laboratory techniques that can be brought to bear on the cultural questions that we want to address. Watchman's review of the issues of dating imagery on rock surfaces stems explicitly from archaeometry and focuses on potential dating methods for images that lack carbon-bearing context and thus cannot be dated by Carbon-14. Although focusing on his own multiple analytical techniques applied to imagery in Australia, he also discusses issues related to the dating of the European Paleolithic images (including the most recent heated debate about the rock engravings and the Foz Côa dam project in Portugal). The development of these new dating techniques and the accumulation of comparative absolute dates (see Davidson, Chapter 6, Table 1) are clearly providing the stimulus and knowledge for evaluating previous dating methods, including archaeological and stylistic approaches, and for challenging existing views about the antiquity of particular rock art styles.

In the next chapter, Jean Clottes focuses on some laboratory techniques that have recently contributed to the analysis and interpretation of Paleolithic cave images

in France. He considers the recent analyses of the "paints" used to create some of the imagery. These results have provided evidence for deliberate mixes or "recipes" that were used both on wall images and on pieces of mobile art on bone/antler. These pioneering pigment and paint studies have brought us much closer to the individual acts of image makers, with hints at the dynamics of image-making itself. They document much variation both in how cave painting was done and in the use-life of caves for image making.

Clottes also addresses the issue of dating the imagery. The recent dates obtained for four of the painted caves in France, which challenge standard stylistic notions about chronology, indicate that what we need for meaningful interpretations are not only suites of dates but as many other lines of corroborating, and preferably independent, evidence as we can muster.

Alexander Marshack, in the next chapter, shows how a very close analysis of engraved marks and of individual motifs, usually by means of a microscope, can be a potentially powerful mode of analysis of the materials themselves. In the context of a brief review of some of his research along these lines for more than 25 years, he considers some of the notably less abundant Paleolithic as well as early Holocene objects from the Middle East. His findings lead him to suggest that both the early farmers of the Middle East as well as the Upper Paleolithic peoples of Eurasia had a comparable, although contextually different, conceptual framework of a "time-factoring" and "time-factored" cultural matrix.

In the last chapter in this section, Randall White uses Leroi-Gourhan's (1964, 1965) anthropological concept of the *chaine opératoire* to analyze some Upper Paleolithic images from Europe. This term, best translated as "the operational sequence," refers to studies of the conventionalized sequence of technical operations, which are inherently cultural, that brings an object or artifact into existence. Considering personal ornaments from the Aurignacian period (dating between some 40,000-28,000 years ago) and anthropomorphic figures from the Gravettian period (dating between some 29,000 and 22,000 years ago), he documents the complex relationships between the raw materials selected, the application of differing techniques/steps/stages for manufacture, and what we know about the contexts of production, use, and disposal, and how we might use these lines of inquiry to not only dismantle the monolithic approach to interpreting Paleolithic "art" but also to infer more situated understandings of what must have been culturally appropriate but also very individualized practices by Paleolithic peoples.

Like other new analytic techniques, the *chaine opératoire* is simultaneously an enlightening as well as a potentially problematic approach. There are assumptions behind the concept that need to be both identified and addressed. For example, we need to understand better the relationship between specific technological behaviors and conscious human choice, which we know is always culturally negotiated.

The close, thoughtful, and detailed analyses of the materials we have to work with will provide us with more contextualized, nuanced and local understandings of the imagery. Since image making is not a vehicle for the mere perception of meaning, either by us or by past peoples and because image making and the imagery itself produces meanings, it is in the scrutiny of the production of the images themselves that we may find a crucial link into comprehending what made the imagery meaningful for prehistoric peoples. This will come from the conjoining of technical analyses with theoretically-framed studies of particular objects, in particular media, made by specifiable productive techniques, and through culturally and socially meaningful technical acts.

Section II, *Approaches to the Presence and Absence,* consists of three chapters that focus on the possible reasons for the appearance and disappearance of image making in prehistory, and reconceptualizes this early image making as a more local and historic phenomenon, linked to specific cultural ways of being in the world.

In the section's first chapter, Iain Davidson, taking a comparative approach that juxtaposes data from Europe to those from Australia, argues that the similarities in the development of early image making shows the universal use of art to reflect the negotiation of environmental relationships: both of the natural and of the social environments involved. He sees the burst of image making after some 40,000 BP as reflecting the exploration of the limits of a recently discovered power of symbolically based communication. In his scenario, the discovery of symbolism first leads to the marking of social identity through symbolic means and then develops into the marking of place.

Ofer Bar-Yosef restricts himself geographically to the Levant in the next chapter, but examines its record over a wide span of time – from the Upper Paleolithic through the early Neolithic. His detailed look at this regional record through time, one which shows the virtual absence of image making and use before the Natufian period, permits him not only to identify a similar trajectory in the development of image making as outlined by Davidson, but to argue that this development is associated with particular changes in the demographic and social histories of the region. This leads Bar-Yosef to conclude that we can only understand the presence or absence of image making through regional and historical perspectives – ones that see modern humans making and using images to address social problems that are grounded in a specific time, place, and social realities.

Manuel Gonzalez-Morales, in the next chapter, takes up a unique perspective on the "art" of the European Paleolithic by asking why did it disappear? Given the predilection for identifying the origins of image making, Gonzalez-Morales draws our attention to the other end of a question that probes the contexts. From this vantage point, he considers the subject matter of Upper Paleolithic cave art in Cantabrian Spain and begins with a detailed critique of the shortcomings of previous interpretations which, as he argues, were based on highly subjective selective favoring of one variable from amongst many. In addressing why this record of spectacular cave painting disappears so suddenly at the end of the Paleolithic, Gonzalez-Morales identifies a developmental trajectory in the subject matter of this art. He points to the concordance between the animals hunted and those painted during the Early Upper Paleolithic (before 20,000 years ago) and charts the divergence of the two through time. He argues that this divergence signals the decoupling of mythology from the perceived real world and how this is derived from changes in economic behavior and social organization.

Although dealing with disparate times and places, the three chapters in this section suggest that we can identify some universal, albeit broad, trajectories in the development of image making and in its use. On the one hand, these chapters reinforce the potential of undertaking the more local approach that does not try to account for specific sets of imagery in terms of overarching and monolithic accounts. Further, they show that the symbolic marking of material culture is not a universal phenomenon of human behavior but something that is sometimes done and, at other times, not done. On the other hand, once this kind of material practice does come into use, however, it may often first be used to mark social identity and, later, to signal corporate entities. Although one type of marking need not necessarily follow the other, the order of their appearance is likely significant and may well reflect increasing complexi-

ties of social worlds occupied by larger numbers of people who remained together on a more permanent basis.

Section III, *Contextualizing and Interpreting Regional Imagery in the European Upper Paleolithic*, contains three chapters that examine parts of the European record and document significant variability in time and across space both in the abundance and in the composition of image making. We have chosen to focus on the European record here precisely because this record has been studied the longest by the greatest number of specialists. Because of this, it is the most appropriate one with which to document intraregional variability.

Jean Clottes, in the next chapter, examines the binary trajectory outlined by previous scholars for the location of Paleolithic images: Those placed "in the light," at or near the entrances of caves and rock-shelters, and those found "in the dark," deep inside caverns. His survey concludes that similar frequencies for imagery in both locales can be observed throughout the Upper Paleolithic time and in all of the Franco-Cantabrian region, but with the one and notable exception of the later part of the Magdalenian period (after *ca.* 14,000 years ago) when the frequency of image making and use in deep caves appears to increase significantly. His documentation of this change indicates that the places where the images were placed – in or near the light and next to occupied sites, or in the dark in the rarely and ephemerally visited locations – may have been specially selected for, and that by the Middle Magdalenian this choice favored the "dark."

Margherita Mussi and Daniella Zampetti, in the following chapter, discuss in detail the Italian record throughout the Upper Paleolithic. This is itself an important contribution, since the region is not often included in the classic syntheses of Upper Paleolithic "art," which have focused on the Franco-Cantabrian region. Furthermore, from their assessment they conclude, first and foremost, that this region did not, as previously postulated, form a thematically separate Mediterranean artistic province. Noting the general similarities in the art and items of personal adornment from this region to those from Franco-Cantabria, they document also local micropatterning in the nature and volume of symbolically marked items of material culture. Thus, for example, in spite of the presence of caves, the Italian record has almost no parietal paintings and few engravings. In addition, they also document the waxing and waning in the volume of the pieces recovered, and apparently produced – from abundant during the Gravettian period to sparse during the Epigravettian (18,000-14,000 BP) to voluminous again during the Final Epigravettian (14,000-10,000 BP). They superimpose this record on the demographic one documenting both the sequence of colonization and abandonment of the different regions by people through time, as well as the increase in the numbers of people inhabiting the region through time. They argue that this concurrence is causally related and that, in general, we can best understand the production and use of this category of material culture as material expressions of particular, but as yet unspecified, solutions to issues of biological and social reproduction.

In the next chapter, Olga Soffer reaches similar conclusions about the relation-ship between the intensity of artistic production and demographic factors. Working with the record from Central and Eastern Europe, she documents regional variability in subject matter and medium as well as in context of use and volume of production. Underscoring the heterogeneity evident in the depictions of females, for example, she argues for the inadequacy of any one single explanation for their significance and advocates instead semantic polysemy. Examining the changes evident in the manner of depicting females through time, which are progressively schematized,

she argues for a progressive restriction of access to the semantic significance or meaning of these images and sees this as a reflection of the rise of decoding specialists, that is, of people who explained their meaning to others.

The three chapters in this section also come up with some similar conclusions. First, the documented diversity in artistic production clearly argues for a diversity in meanings from place to place, through time, and likely between not only groups but individuals. Second, the Italian and Central and East European records, just like those from the Levant and Cantabria discussed in Section III, show variability through time in the intensity of artistic output and use. Third, they infer that there was a restriction of access to at least some symbolically marked items through time that is manifest in a variety of ways, from increased use of deep caves to schematization and geometrization of subject matter previously depicted more naturalistically. These conclusions resonate with those advanced by Gonzalez- Morales, who argues that the Cantabrian Upper Paleolithic record suggests a separation of mythology from the natural world and its transfer to the supernatural one. This patterning, if it can be sustained, adds more insights to the hypothesized developmental scenario for the uses of symbolically marked artifacts through time in those areas where this material practice was in use.

Section I, *The Interpretive Process*, includes five chapters that assess the more theoretical aspects of what interpretation has involved and offer richly grounded interpretive scenarios that draw on ethnography, ethnohistory, and other cultural models that enable the authors to get closer to the meanings and illustrate the complexity of what we are grappling with in a study of early imagery.

In preceding sections we learned from closely-honed studies that early image makers knew the properties and possibilities of their materials. This section points out that materials might have been selected as much for their symbolic properties as for their physical ones: For the shine they make, for the feel they produce, for the effect of transparency that may result, or for the resonance they may have with experiences and visions.

Chapters in this section are concerned with the basic idea of image making as a social practice and with more nuanced understandings of what archaeologists often take for granted as context. Taken together, they underscore that the imagery studied is not transcendent and does not provide us with transcendent values. Realizing this directs us to deal with the context of their production, a concept that is also complex and mutable.

This is dealt with by Sylvia Tomásková in the next chapter, who illustrates the point that context is historically contingent. She also points out that context means different things in archaeology and in art history. Furthermore, within archaeology itself, different kinds of artifacts are approached differently, depending on what we have inferred their contexts to be. Tomásková discusses the impact that national and intellectual traditions have had on our research by focusing on the disparate treatment of materials from the Gravettian Willendorf (in present-day Austria) and from the coeval Pavlov sites (in the Czech Republic). Her discussion also underscores that the comparative method itself, a mainstay in the interpretive tool kit of anthropology and archaeology, is by its very nature a highly selective tool because what you select to compare influences your conclusions.

Andrée Rosenfeld, in the following chapter, uses generalized ethnographic and ethnohistoric insights into the making of rock art to establish some parameters within which interpretation can proceed. First, she documents that Australian rock art is not a monolithic entity but that the images and their production articulate with aspects of

individual identity, supraindividual identity, and territoriality. Rosenfeld conveys how rock art is both a vehicle for the expression and determination of a social landscape as well as continually open to constant negotiation for varied social purposes.

In the next chapter, John Parkington and Tony Manhire deal with Holocene imagery in rock painting, even if such practices do have documented Pleistocene antiquity in southern Africa. Their contribution, together with those of Rosenfeld, Marshack, and Bar-Yosef, remind us that the demarcation of a research boundary between the Pleistocene and Holocene is an artificial heuristic device.

While examining the same subject matter – South African rock art – as does Lewis-Williams in the following chapter, they come up with considerably different conclusions. We have included both approaches in this volume because they reflect an ongoing dialogue among researchers in southern Africa about the centrality of shamans and trance in interpreting the imagery. For Parkington and Manhire the imagery as part of how people came to understand their social and sexual relations, often, but not always, through the vehicle of trance. Specifically, they suggest that the imagery is about *being* a hunter or a gatherer and about the assumption of adult roles rather than about hunting and gathering *per se*.

In the next chapter, David Lewis-Williams works with South African and Upper Paleolithic European imagery to imply that what image making does is to actually "galvanize a production of meaning" (Bryson 1983: xii); that is, to propel, mobilize, or bring forth what may be multiple and cascading meanings, with multiple referents. Using neuropsychological evidence about the optical images produced during altered states of consciousness, together with the evidence on the pervasiveness of shamanism in hunting-gathering societies, he further develops his hypothesis that the European Upper Paleolithic cave imagery can best be understood as shamanistic (see Lewis-Williams and Clottes 1996).

The implications we can draw from this chapter are that at least some of the images in Upper Paleolithic caves are not likely to be just animals, "signs," females or males that somehow can be read directly as a list of species, nor can they be treated only as ethological or gynecological specimens. Rather, these are representations, these are "sites," as Davis (1984) has suggested, where material practices and representation come together to form and re-form the experiences of some people in various times, places, contexts, and circumstances.

In the final chapter, Conkey reflects on some of the major concerns that the contributors have broached in this volume, such as the need to take up a more contextual approach and the very challenging and prickly subject of interpretation, especially since the very spirit of the volume is to open new avenues for interpretation in the study of early and ancient image making. It is a moment at which the study is now global in scope and is addressing issues that are "beyond art" and beyond a search for an overarching account. The term, "context" itself has varied meanings and references; she explores as well the "constituting contexts" of our own research. Lastly, she briefly describes the early stages of a research project that seeks to better understand the "social geographies" within which at least one distinctive regional visual culture of late Upper Paleolithic France (the Magdalenian of the Midi-Pyrénées) was practiced and produced.

Taken together, these last chapters illustrate well, with both theory and empirical observations, the point we made earlier, namely, that the images themselves are polysemic and that therefore there not only can be, but must be polysemy in our interpretations of them. This concluding section confronts how we explicitly or implicitly engage in the interpretation of prehistoric imagery. These are not just peripheral is-

sues specific to the individual personalities or national preferences of researchers, or to a small segment of the field. They are central issues in all of archaeology, in the interpretation of human culture, and in the human sciences, namely, how do we know what we know? What can we know and is there such a thing as absolute or secure knowledge? Are we in the business of producing knowledge to control humans or are we engaged with our materials in order to produce humanly-compelling knowledge and ideas that matter, ideas and knowledge that can themselves be used to transform and invigorate our communities and lives? The appeal of the study of early human imagery and symbol is that it provides us with these kinds of humanly compelling ideas.

Coda

We conclude with a word about the chronometric dates presented in the volume. In all cases the dates given, presented as assays BP (Before Present), represent uncalibrated dates, usually obtained through radiocarbon dating of organic remains associated, wherever possible, with the images in question. For readers who prefer to begin with some chronological grounding, we suggest first a review of Table 1 in the Davidson chapter, where he provides a list of dates for a set of European cave paintings.

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Section I

Analytical Methods: From Dating to Technologies of Image Making

Paleolithic Marks: Archaeometric Perspectives

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In the last five years technological developments have enabled the extraction of micrograms of carbon in paint and laminae under and over paintings making it possible to date small samples of Upper Paleolithic rock art. Plant fiber binders, blood, charcoal and bees wax resins have been used in the radiocarbon dating of organic components intimately associated with relatively recent and Upper Paleolithic rock paintings. However, new techniques are needed to date ancient paintings and engravings where organic substances are not part of the human rock marking process itself. Carbon-bearing components in the 'canvas' and overlying 'varnish' have been radiocarbon dated using accelerator mass spectrometry to constrain paintings and engravings between maximum and minimum time limits. Bacterial, fungal and algae remains, calcium oxalate minerals and charcoal particles in rock surface accretions covering rock art have been identified as potential sources of datable carbon. In the process of examining and dating these substances, so that their associated rock art can be dated, we have also come to appreciate the complex association between carbon directly related to a painting event and background (contaminating) sources of environmental carbon. Development of new scientific dating techniques and the accumulation of comparative absolute dates are providing the stimulus and knowledge for evaluating previous dating methods, including archaeological and stylistic approaches, and for challenging existing views about the antiquity of particular rock art styles. This paper presents information about the methods and problems of dating rock surface accretions associated with Paleolithic marks on rocks, particularly paintings that do not contain organic binders.

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Dating Paleolithic Rock Art

Stylistic Perspective

Fundamental to discussions about Paleolithic rock art is the question of antiquity and how a painting or engraving on a limestone cave wall fits into the sequence of A. Leroi-Gourhan (1965), whose chronology has formed the basis of stylistic dating in Europe. The key to allocating a motif to a Paleolithic period is the identification of stylistic traits in the art, and this is where dating by style runs into difficulty. Firstly, because the perception of a particular style is very subjective and variable through time, with the stylistic specialists being unable to recognize consistently those markers that can be used irrefutably to place a figure precisely in time (Conkey & Hastorf 1990). Secondly, the chronology of 'type' paintings and the acceptance of the linear evolution of Paleolithic rock art at Niaux (Clottes *et al.* 1990:21), Quercy (Lorblanchet *et al.* 1990, 1995), and at other Rhone Valley and Quercy sites (Lorblanchet *et al.* 1990) has changed over the last 80 years even though the specialists at the time have used essentially the same stylistic criteria to support their opinions. Thirdly, the use of style as a chronological tool in rock art studies has waned as exceptional cases have been found, such as the Grottes Cosquer and Chauvet, and although the use of style has been strongly criticized and rejected by many scholars (Bahn 1993; Bednarik 1995), some prehistorians prefer to maintain the stylistic dating tradition despite the recent advances in dating technology (Clottes, this volume). The breathtaking naturalistic depictions of groups of horses, bison, fighting rhinoceros, bears, and other animals in the Grotte Chauvet, that fit the typical Paleolithic convention, contain properties that to an art historian's eye might appear too advanced for their age. This recent discovery therefore not only challenges the prevailing notions about the evolution of Paleolithic style through time (refer to the radiocarbon determinations in Table 1, Davidson, this volume), but it also makes us rethink our ideas on the development of human culture. Fourthly, the extent to which reliable scientific methods have been used to develop stylistic chronologies is seldom reviewed critically by prehistorians, and the timing may now be right to do so because the new dating methods have revealed some surprising results. As we will see later in this volume even when separate archaeometric dating methods independently arrive at scientific evidence contrary to prevailing opinions about the age of rock art (determined stylistically), considerable argument and publicity still cannot persuade prehistorians to reconsider their entrenched chronological perspectives (for example at Foz Côa, Portugal).

In trying to date Paleolithic rock art today we therefore find ourselves in a controversial dichotomy, between the stylists and the archaeometrists (see below). The stylists, on the one hand, support the comparison of artistic conventions and traits seen in mobiliary art (engraved bone, amber and plaques), and those apparently similar features recognized in the paintings and engravings on cave walls and in open air settings. On the other hand, the archaeometrists measure physical and chemical attributes and compare their results with subjective descriptions of earth surface weathering processes and landforms associated with the environment surrounding the panels of art. As described in the following chapters the various specialists do not always agree on the antiquity of particular figures thought to be Paleolithic, possibly

because an aura, 'mystique,' envelops Paleolithic art, allowing emotions to influence analysis.

The Archaeometric Perspective

One of the most frustrating aspects for archaeologists studying Paleolithic rock pictures has been the lack of a reliable scientific method to establish their absolute antiquities, rather than their relative ages according to inferred archaeological and stylistic evidence. During the last decade, and especially in the last four years, major progress has been made to reduce much of that frustration by the development of new dating methods. However, in place of frustration has come anxiety, and even hostility, about the reliability of these new dating methods. For the archaeometrist the challenges of absolute dating rock art are enormous, exciting and hopefully rewarding, but there are also substantial limitations, pressures and conflicts.

Unfortunately, in the rush to be the first to produce dates for an established rock art style using a new dating method, the archaeometrist often does not have the opportunity, funds and resources to examine fully all possible causes of potential errors. Initially this does not seem to disturb the professional archaeologists, prehistorians and enthusiastic amateurs because a new date for another rock art style is exciting news. However, the archaeometrist had better produce a date that satisfies existing theories about the antiquity of the art or else the new method will soon become obsolete, as the potential errors rapidly become the noose and gallows for the academic lynch mob.

At the time of the Wattis Foundation symposium (March 1995), these remarks were probably obtuse to many in the audience, but the circumstances rapidly became reality during the controversy that occurred several months later when petroglyphs in the Côa Valley, Portugal, were threatened by flooding. Four independent archaeometrists, using separate techniques on different samples determined that the engravings were most probably of recent antiquity (Bednarik 1995; Watchman 1995), and their results contradicted the stylistic specialists who had earlier stated that the engravings showed characteristics typical of Paleolithic works of art (Bahn 1995; Clottes 1995). The major implication inferred by many Portuguese archaeologists from the archaeometrists' measurements was that the results decreased the value of the engravings, heightening fear that the dam project would go ahead. Anger, frustration, high fervor and great anxiety of the dam opponents led to vitriolic personal attacks and almost libelous accusations of corruption and complicity against the archaeometrists. By not obtaining results compatible with the stylists' views the archaeometrists felt the full passion and force of the traditional prehistorians, a situation which potentially threatened further refinement and development of these new dating methods.

Admittedly, the history of dating rock art using archaeometric methods is only short compared with the use of style and archaeological methods, and because of this it seems that some prehistorians regard the methods as experimental (Clottes *et al.* 1995), and therefore defective. Archaeometrists have their own concerns about the assumptions and techniques of the new dating methods, as illustrated in the following example. In 1983 a potential approach for dating varnished rock engravings, the cation ratio method, was realized (Dorn 1983). Archaeologists who had been deprived of a scientific dating method for establishing the antiquity of their rock engravings eagerly welcomed this magic formula. It was the chronological elixir, the salvation and inspiration for bored archaeologists and geomorphologists because now they could accurately fix their interpretations in time and relate rock art motifs to other well dated cultural relics and place landform evolution in established paleoenvironmental peri-

ods. However, many questions arose about the method (Bednarik 1988; Clarke 1989; Clegg 1988; Lanteigne 1991; Reneau & Harrington 1988; Watchman 1989), and few of them were answered to the satisfaction of geochemical critics. The method was reviewed by its founder (Dorn 1989), and a few critics wavered in their opposition. Some archaeologists became true believers and promoted the method so they could use it to date their rock engravings, espousing support when subsequent dates didn't destroy their hypotheses.

However, skeptics did not believe the hyperbole and conducted their own independent research of rock varnishes, to examine the assumptions of the new dating method and the analytical procedures used. Serious doubts arose (Bierman & Gillespie 1994; Dragovich 1988; Krinsley & Anderson 1989; Raymond *et al.* 1991; Reneau & Raymond 1991; Reneau 1993; Watchman 1992a, b), and the cation ratio dating method has now lost support among geomorphologists and geochemists. A few archaeologists remain cation ratio dating disciples despite the increasing weight of independent analytical evidence against its universal application for dating all rock varnishes. Cation ratio dating is still used when no other method seems possible (Francis *et al.* 1993). Results obtained have been startling (Dorn *et al.* 1992; Nobbs & Dorn 1988), and perhaps for this reason alone Dr. Dorn has succeeded in drawing attention to the possibility of dating very thin coatings on rock surfaces. Seemingly outrageous claims of great antiquity for rock engravings in North America (Whitley & Dorn 1994), equally the Magdalenian in Europe, have stirred archaeological and anthropological interest in rock art of the New World. The significance and value of rock art has now taken on new meaning for a variety of specialists, not only for deciphering when metaphorical symbols were pecked into rocks (for example Martineau 1990; Patterson-Rudolph 1993), or when shamanistic compositions were painted (Lewis-Williams, this volume), but also to improve our understanding of human cognitive development through the Paleolithic, because it now seems possible to obtain absolute dates for individual motifs.

The challenge for geochronologists and archaeometrists is, and probably always will be, to satisfy the archaeological and anthropological experts that new dating results are scientifically reliable despite results that contradict current theories about the antiquity of certain painting and engraving styles. Comparisons are inevitably made with existing chronologies whose bases either rely on personal interpretations of slim stylistic and archaeological evidence, or on invalid assumptions. For instance, comparing the antiquity of charcoal fragments found on the floor of caves today with similar radiocarbon measurements obtained from charcoal particles scraped from paintings on nearby cave walls (*e.g.*, Grottes Chauvet [Clottes *et al.* 1995], Cosquer [Clottes *et al.* 1993] and Tête du Lion [Combier 1984]), should not be used by prehistorians to prove the antiquity of the paintings. Following Bednarik's reasoning (Bednarik 1989:10), coincidence between such pairs of dates only suggests that the charcoal pieces on the floors were probably used to make the paintings, it does not prove that the paintings were done at the time determined by the amount of ^{14}C remaining in the charcoal samples. The results do, however, reveal that depositional and erosional forces in caves are extremely slow, and that pieces of charcoal can remain on cave floors for long periods, making them readily available for the creation of post-Paleolithic works of art.

The archaeometrist, with little money available for substantive testing, must rely on one or sometimes a handful of dates to demonstrate potential in a new dating method, whereas academic prominence may only be necessary to fix a rock art style in antiquity. An archaeometrist can expect praise and glory following good correla-

tions between the first few scientific dates and the expected archaeological age of a painting or engraving. If the age is older than expected, then that proves human development was even earlier than previously believed and so the work is commended. The inventor of the dating method is acclaimed, funds flow for more research and a respectable academic career is guaranteed. Few critics appear. However, dates that challenge existing archaeological opinions about the great antiquity of a particular rock art style provoke strong opposition from academics and rock art enthusiasts. The new dating method is denounced and the archaeometrist's credibility is censured (as typified by the Côa Valley controversy), but few prehistorians seem willing to challenge the archaeological evidence and the assumptions used in the stylistic arguments that support the prevailing opinion.

On a personal level, my approach to the dating of rock art comes from conservation science and the use of various analytical tools to authenticate works of art on canvas. In studying easel paintings the conservation scientist examines the canvas, the ground layer beneath the paint, the pigment colorant, binder and extender, and the overlying varnish, and determines antiquity using the known availability of various manufactured components and by radiocarbon dating the organic components. When this approach is adapted to prehistoric rock art the canvas ground layer and varnish become natural rock surface coatings such as oxalate crusts, secondary calcite layers, rock varnishes and silica skins. Often these deposits contain carbon-bearing substances and by dating them an estimate can be obtained for sedimentary layers directly associated with paintings and engravings, therefore making it possible to date rock art. Charcoal particles and organic binders in paints can also be radiocarbon dated, but this is where the problems start for the archaeometrist.

Constraints on Sampling and Data

What scope is there for adequately testing a new dating method? The archaeometrist who aims to date rock art is restricted in many ways, but primarily by three major factors. Firstly, rock paintings and engravings are regarded by most people as cultural artifacts worthy of preserving either for aesthetic pleasure, for their archaeological and scientific values or for their unique links with existing or previous cultural traditions. Indigenous peoples regard rock pictures as direct expressions of their culture. They are often highly significant images placed in specific locations for special, secret or sacred activities. It is inappropriate for a archaeometrist to take large pieces of a painting or stone slabs bearing rock pictures because the aesthetic damage would be obvious, and the spiritual impact immense. Consequently, after obtaining permission to sample from traditional owners and modern managers, the archaeometrist is limited to taking only small samples of painted or engraved rock.

Secondly, sample size for dating carbon extracted from components associated with paintings and engravings is constrained by the minimum weight of graphite ionized by the source of an accelerator mass spectrometer (AMS). For most spectrometers this is ideally 100 μg of graphite; equivalent to 2.5 ml of CO_2 gas, 5 mg of wood (cellulose) or 3 mg of charcoal. To meet this specification the piece of painted or engraved rock must be sampled so that enough graphite is produced for dating after the sample has been pretreated. Under highly stable accelerator operating conditions and very low background count rates measurements can be made on as little as 50 μg of graphite. Therefore, in order to obtain more than 50 μg graphite the paint or mineral coating must have more than 1.5 mg charcoal or 2.5 mg cellulose fibers.

This size limit for a graphite target is not always possible to achieve, especially in the first few samples collected at a new painting or engraving site where the organic content is unknown. Importantly, each new sampling site has different paint and associated mineral deposits and until analyses are done to establish the carbon content in these materials the precise amount of graphite that is possible for dating is uncertain. For example, in the recent dating of Bradshaw style paintings in Western Australia that are thought to be at least 15,000 years old (Walsh 1994), powder scraped from silica covered paint across 10 cm^2 of rock face and weighing 8.9 mg produced insufficient graphite for ^{14}C AMS dating (only 2 µg). Similar situations have been found elsewhere because paint does not contain an organic binder and insufficient carbon is contained in mineral skins associated with art (Watchman & Lessard 1993). Deciding how much paint can be removed from paintings without causing discernible damage is a difficult situation for archaeometrists, rock art custodians and for the traditional owners.

Thirdly, the archaeometrist must be able to collect in one way or another datable substances that are directly associated with recognizable rock art. To obtain an archaeologically acceptable date the association between the carbon bearing substance that is dated and a painting or engraving must be clearly demonstrated (Batten, *et al.*1986). Such an objective is not always easy to achieve (for example, Loy *et al.* 1990; Loy 1994; Nelson 1993), because organic binders were not used in every paint recipe (Pepe *et al.* 1991; Wainwright 1985; Watchman 1993a, Watchman *et al.* 1993), many years may have passed between the time of paint and pigment application or engraving and its masking by mineral salts or rock varnish, and it may not be physically possible to remove a flake of rock from where the archaeometrist and prehistorian would like to take a sample. Alternative means for dating paintings must therefore be used. If we cannot date a painting precisely because carbon-bearing components are not present in the paint itself, then our next best option is to date carbon bearing substances above and below a paint layer to define the approximate painting time limits. For an engraving, we must find and date carbon bearing substances immediately above it to determine its minimum limiting age.

We cannot date precisely the surface of an engraving or the surface under a paint layer because the boundary itself has no contact or extractable substance (Bourgeois 1990). Furthermore, the accuracy of boundary definition at any one locality can be highly variable, especially at the nanometer scale of rock surface accretions, thin paint layers and engraved surfaces. Irregular surface features such as vermiform textures (worm-like network deposits), microstromatolitic mounds and spot concentrations (pimples) produce rough, microtopographically undulating surfaces, and these are difficult to sample accurately. Physical and biological disturbances decrease the accuracy of delineating the boundaries between paint and the 'sandwiching' layers of minerals because ingredients mix along the upper contact in particular, resulting in mixtures that may have formed over a considerable period of time. Diagenetic processes, such as postdepositional chemical alteration also affect the boundary between paint and superimposed mineral layers, or between an engraving and its overlying rock varnish.

Bright red, pale yellow and dull black laminations are occasionally observed by microscope when some rock surface mineral layers are cut at right angles to the layering, and these colored layers are thought to represent past painting episodes. While these traces of paint in sections, and similar ones occurring as apparent splotches on rock walls, signify the presence of humans rather than natural depositional processes they do not necessarily make a recognizable painting. They could be smudges or acci-

dental spills and therefore not of cultural significance. On the other hand, rock art conservators may be able to use microexcavation techniques in the future to reveal what some of these encrusted paintings look like.

Bracketing a paint layer by dating substances in layers on both sides of an 'artistic' boundary at least gives an approximate time frame for its production, with maximum and minimum limits. The amount of time represented by dating carbon bearing substances in a 'layer' removed by physical excavation (in a micrometer scale excavation) is unknown because the measured age is an average of all carbon substances in that excavated sample. Determining the average sedimentation rate in a series of adjacent laminations through a well laminated succession of accreted dust and salt increases the degree of confidence in the age determination for a layer adjacent to paint. Measuring an instantaneous sedimentation rate is generally not possible, but the modern annual deposition rate can be recorded, and this will indicate approximately how long it takes for components to accumulate in a lamination. Very slow sedimentation rates, periods of virtually no deposition or intervals of erosion complicate estimates of accumulation rate, making it even more important to carry out predating examinations and analyses.

Detailed petrographic and chemical compositional studies combined with paleoenvironmental information help the archaeometrist to understand accretion formation processes and changes in the accumulation rate over time, and through variable climatic conditions. For reliable dating of laminated coatings the archaeometrist must know that depositional processes have been regular, and that erosional episodes have been of significantly smaller scale than the time span in question.

An additional sampling problem is caused by the hardness of the underlying rock because natural surface weaknesses that result in partly detached exfoliation flaking may not occur precisely where the archaeometrist wants to take a sample of painted stone. Chiseling or drilling into the surface with hollow diamond bits makes unsightly and unacceptable scars, so paint on hard quartzite, limestone or sandstone may not easily be removed. This means that designated figures representing 'type' examples of a particular style may not be datable.

The following sections look at the possibilities for dating crusts and skins, and at two recently developed techniques for extracting carbon bearing substances from rock art. I then conclude this paper by reviewing scientific dates obtained for charcoal (particularly for Paleolithic art), organic binders, oxalate salts, and organics in silica skins and rock varnishes.

Bracketing Rock Art in Time

In examining rock art surfaces as part of condition assessment for conservation projects I recognized that many Australian rock paintings were naturally covered by finely laminated, dusty gypsum and oxalate deposits (crusts), or lustrous amorphous siliceous coatings (skins; Watchman 1987, 1990, 1992c). I found datable carbon-bearing substances in these rock surface accretions; the calcium oxalate minerals whewellite ($CaC_2O_4.2H_2O$) and weddellite ($CaC_2O_4.H_2O$) in crusts, phytoplankton (diatoms), fungi, bacteria and algae in silica skins, and fine charcoal particles in both. These datable carbon-bearing substances exist in stratified microsedimentary layers directly beneath and over paint. Although the paint itself cannot be dated directly because it does not contain carbon bearing substances the potential exists for indirectly dating the period between deposition of the 'canvas' under, and the 'varnish' over a

painting. Establishing a time bracket for many paintings is therefore possible provided the carbon bearing substances and mineral deposits are coeval and the carbon can be extracted from its microstratigraphic position without contamination.

Oxalate in Layered Crusts

Many Australian rock paintings are on the relatively smooth, dusty back and side walls of sandstone, limestone and quartzite rock shelters. Although these surfaces are superficially protected from direct rain they slowly accumulate evaporitic salts, such as gypsum, polyhalite, and other hydrated sulphate and nitrate minerals, that crystallize from splashed and sprayed rain water droplets that moisten shelter walls during torrential storms. In dry periods dust particles from a variety of local and regional sources also settle on these surfaces, eventually becoming cemented by salts into hard dark crusts.

Over time these salt and dust deposits gradually increase in thickness, reaching 4 mm on stable low angle ledges. In cross section the crusts usually consist of many fine laminae representing changes in the compositions of airborne components that have settled and crystallized on the surface reflecting environmental fluctuations. Increase in gypsum is tentatively correlated with warm and dry, conditions whereas oxalate salt is thought to form when the rocks were frequently warm and damp. Laminae dominated by quartz and clay imply hot and dry conditions, and abundant particulate charcoal associated with quartz and clay represent periods of drought, regular regional fires, dust storms and human occupation.

One of the simplest ways to date a painting whose paint does not have an organic binder is to determine the AMS radiocarbon ages of charcoal particles in laminae under and over the paint (Watchman 1993b). However, not all crusts have enough particulate charcoal associated with layers directly associated with paintings for the masked paintings to be dated. The other difficulty is to extract the charcoal particles from each layer without introducing modern contaminants, a problem that is potentially solved by the laser extraction method which is described later.

The back walls of many rock shelters are ideal habitats for insects, fungi and algae, especially when conditions are frequently damp and warm. Insect exoskeletons, composed mainly of chitin, are incorporated into crusts with salt and dust particles. Fungi metabolize dead organic material that litter the dusty salt encrusted surfaces, and are themselves integrated into the deposit with other crust components. Under warm and humid conditions algal colonies develop, making use of moisture, indirect sunlight and trace elements in dust to establish themselves on a stable nutrient rich substrate. Oxalic acid is often produced as a consequence of these microorganic activities and by the degradation of organic substances. Reactions between oxalic acid and dust particles, particularly calcium, lead to crystallization of calcium oxalate salts such as whewellite. As carbon in whewellite can be dated by AMS ^{14}C the layer containing that salt, and other layers with particulate charcoal can be used to date past episodes of painting (Watchman 1993b; Watchman & Campbell in press).

Fossilized Microorganisms in Laminated Silica Skins

Translucent to white opaque coatings composed of hydrous amorphous silica cover many painted rock faces throughout the world. They are formed by deposition of silica from runoff and seepage water that flow regularly across rock surfaces.

When silica precipitates rapidly from evaporating water the bacteria, fungi and algae that inhabit these moist rock faces become encapsulated in the resulting silica skin. Complete diatom frustules are often preserved in the coatings, and bacterial and algal fatty acids are identifiable (Watchman 1992c), so these synsedimentary organic and inorganic deposits can be radiocarbon dated (Watchman 1994). The approach is similar to removing carbon-bearing organic binders from paint and radiocarbon dating the age of the painting, but in the case of silica skins it is the age of silica deposition that is determined.

It is assumed in this dating method that chasmolithic and endolithic microorganisms do not invade the siliceous coatings, and that only carbon from fossilized microorganisms is dated, otherwise their presence would lead to a false age for silica deposition. Detailed microscopic observations and organic chemical tests are used to establish the validity of these assumptions. The additional assumption that no subsequent microorganic or inorganic process has introduced carbon-bearing substances into the silica seems very reasonable as the fossilized carbon is enclosed by encapsulating silica and a chemical process would be necessary to penetrate the silica film in order to contaminate the fossil carbon. If these assumptions are valid, and obvious physical contamination from rootlets is not a problem, then the age of the organic matter in the silica skin will be the same as the age of silica deposition. Control over the reliability of this method is achieved by the internal consistency of results for an accretion. This is achieved by dating a sequence of stratigraphic layers in these thin coatings and establishing conformability; a process that overcomes the problem of a direct date alluded to by Clottes (this volume). Dating organic matter in laminated silica under and over a paint layer therefore provides a very good estimate of the age of that painting. Dating silica deposited in an engraving gives a minimum age for that engraving, whereas dating the fossilized organics in silica on an adjacent surface through which the engraving was made establishes a maximum age (contrary to the views of some prehistorians; Clottes *et al.* 1995:20).

One example where organics trapped in silica have been used to provide a maximum age for paintings (effectively the canvas age, to use the conservation science analogy, but unfortunately not Paleolithic), is at the Nisula site, Québec, where anthropomorphic figures, vertical bars and abstract designs have been painted in hematite on a glacially polished cliff face. The paint rests directly on a thin (0.08 mm thick) film of hydrated amorphous silica that has formed by deposition out of seepage water that runs infrequently across the gneiss. Fossilized organic matter in the silica skin that was combusted and dated by AMS ^{14}C gave 2,500 ± 275 radiocarbon years BP (OZA403); consistent with archaeological expectations for paintings approximately 2,000 years old (Arsenault 1995:27). A second sample from approximately one meter away gave a radiocarbon measurement of 2,440 ± 610 years BP (OZB350), substantiating the first result for the maximum painting age. Although these outcomes and other dating results for silica skins (Watchman 1994) demonstrate the method's potential for dating rock art the contradictory results for the allegedly Paleolithic engravings at Foz Côa, Portugal (Watchman 1995), and the hostile response that this aroused in stylistic prehistorians does not encourage application of the method for dating other European rock engravings.

Secondary Calcite Laminae

One research area that potentially offers a way of validating the radiocarbon measurements on charcoal from Paleolithic figures on the cave walls of France, and else-

where, is the dating of secondary calcite (calcium carbonate) deposits formed over painted surfaces. Using the conservation science approach, one should be able to determine microstratigraphic conformability between the age of secondary calcite precipitation and evidence of paint in a layer covered by a carbonate film. Combining uranium series dating (Schwarcz 1982) and radiocarbon methods to establish the age of secondary calcite formation, with the radiocarbon dating of charcoal from a painting surrounded by secondary calcite should give independent control over the age of the painting. Unfortunately, while this approach has only been attempted for engravings in Australia (Bednarik 1984) and China (Huashan *et al.* 1987) on mid-Holocene surfaces it has not been attempted on any Paleolithic painting sites in Europe despite my repeated urgings for scientists to do so.

Organic Matter in Layered Rock Varnish over Engravings

Rock varnish, consisting essentially of iron and manganese oxides, occasionally covers engravings on exposed rock surfaces. Inorganic varnish components have been dated by the cation ratio method (Dorn 1983, 1989), and organic substances trapped in basal varnish layers have been dated by AMS ^{14}C (for example, Dorn *et al.* 1992; Francis *et al.* 1993; Whitley & Dorn 1994). The fundamental premise of the cation ratio dating method is the semilogarithmic relationship between the ratio of (Ca + K) / Ti (the cation ratio) and the age of the same varnish. Although an attempt was made to indicate cation leaching sites in varnishes to explain the gradual loss of mobile calcium and potassium (Dorn & Krinsley 1991, Watchman 1991), no valid scientific explanation exists for the experimentally derived decreasing ratio with increasing varnish age.

A calibration curve is constructed for rock varnishes in an area by dating organic matter encapsulated in the basal parts of varnishes using AMS ^{14}C and by determining the cation ratio for its accompanying varnish (Dorn 1989). The basic assumptions necessary to establish a cation ratio calibration curve are: (1) that varnish continually forms by accretion of dust particles and there is no physical, chemical or biological reworking of the components; (2) varnishes at the calibration site are developed in the same way as varnishes at engraving sites selected for cation ratio dating; (3) the less than 2 μm fraction of dust in rock crevices provides a measure of the regional 'initial ratio' for the onset of varnish formation; (4) rock varnish probably starts to form about 100 years after a rock surface is exposed; and (5) organic matter in varnishes is contemporaneous with its accompanying inorganic components.

The cation ratio dating method has been strongly challenged on theoretical, statistical (Lanteigne 1989, 1991), textural, and geochemical bases (Fleming & Barnes 1994; Reneau & Harrington 1988; Reneau & Raymond 1991; Watchman 1989; 1993c), and substantial doubts about its integrity exist among many archaeometrists, geomorphologists and geochemists. One example of a potential problem with the method is that subvarnish organic matter from a well-layered varnish may have been eroded from older varnish and deposited over younger material as demonstrated at a calibration site in Australia where plant fibers in basal varnish (1,375 ± 60 years BP, AA7722), were found to be younger than similar fibers in overlying layers (6,970 ± 100 years BP, NZA2570; Watchman 1993c).

Applying the assumptions of the cation ratio dating method to every varnished rock surface without undertaking compositional and microstratigraphic studies ignores the highly complex nature of rock varnish formation, varnish inhomogeneity and compositional variability (Bierman & Gillespie 1994; Raymond *et al.* 1991; Re-

neau & Raymond 1991; Reneau 1993). Calibration curve reproducibility is questionable, even using varnishes from one site (Watchman 1992a), and verifying cation ratio dates with AMS ^{14}C ages of subvarnish organic matter (Whitley & Dorn 1994), does not provide a truly independent antiquity check because a cation ratio calibration curve is constructed using varnish organic matter ages.

Recent Carbon Extraction Procedures

Existing methods for collecting organic substances associated with rock paintings include the physical extraction of charcoal (David 1992; Valladas *et al.* 1990, 1992), plant fibers (Watchman & Cole 1993) and beeswax (Nelson et *al.* 1992), and the chemical dissolution of blood (Loy *et al.* 1990). Removing calcium oxalate minerals and fatty acids derived from algae, fungi and bacteria is generally not practicable by either physical or dissolution methods, especially the latter as all carbon is generally removed from the sample. Two methods, oxygen plasma and laser induced oxidation, have recently been developed for removing trace amounts of carbon from rock surface accretions and paints. The oxygen plasma method essentially removes molecular organic carbon rather than oxalate and carbonate carbon, whereas the laser method combusts charcoal and molecular carbon, and decomposes oxalate minerals. Selective use of laser power and wavelength enables the preferential extraction of separate carbon bearing substances in a laminated rock surface accretion thereby maintaining archaeological sampling integrity while minimizing contamination. These two distinct methods, combined with AMS ^{14}C dating, now provide two of the best means for extracting carbon from binders and accretions associated with Paleolithic rock art.

Oxygen Plasma

Oxygen plasma oxidation is used where organic binders or charcoal are known to exist in paints (Chaffee *et al.* 1993; Russ *et al.* 1990). In this process a painted rock sample is placed in a high vacuum reaction chamber made of borosilicate glass, and subjected to a low temperature oxygen plasma produced by two external electrodes connected to a radio frequency generator. Reaction of oxygen radicals, formed when the generator is switched on, with the organic phase produces carbon dioxide and water which are collected in liquid nitrogen traps attached to the reaction vessel. After sufficient gas is liberated it is frozen in a glass tube, sealed off and sent to an AMS facility for determining its ^{13}C content (Chaffee *et al.* 1993). Application of the method for dating charcoal scraped from two horses at Le Portel has yielded radiocarbon determinations of Recent Magdalenian age (Igler *et al.* 1994).

Laser-Induced Photooxidation

The laser extraction method is used to convert organics, particulate charcoal and oxalate minerals, observed in laminae revealed in thin cross sectional slices of a painted skin or crust, into carbon dioxide (Watchman & Lessard 1993). Small slices of encrusted rock are mounted in a vacuum tight combustion chamber, the air is replaced by pure oxygen at low positive pressure, and light from a Krypton ion continuous laser (413 nm) is focused through a glass window in the chamber to a spot diameter of 0.003 mm directly onto a lamination (Watchman & Lessard 1993). Carbon dioxide that is produced by photooxidation of carbon bearing substances under

the beam is collected in a glass tube immersed in a liquid nitrogen trap. When the procedure is complete the CO_2 is converted to graphite for AMS ^{14}C dating.

For some inexplicable reason there appears to be considerable confusion amongst some geomorphologists and prehistorians about the use of this laser technique for dating rock art (Clottes, this volume; Werlhof *et al.* 1995). While the method was developed to demonstrate the potential for extracting small quantities of carbon-bearing substances from laminated mineral accretions and paint layers not a single radiocarbon determination has been obtained for a rock painting or engraving.

Paleolithic Dating Results

Results for Charcoal

Accepting at face value the radiocarbon dates for charcoal in supposedly Paleolithic paintings may not be wise, as the following late Holocene example demonstrates. At the Giant Horse site, near Laura in North Queensland, Australia, a small fragment of carbonized plant stem (0.41 mg), was removed from the front leg of a very large polychrome painted animal, interpreted as a horse (Flood 1990:122; Trezise 1993:97). The charcoal, believed to be an accidental inclusion during preparation or application of white paint, was considered to be highly suitable for dating, but its age was unbelievably too old (435 ± 65 years BP, AA9685; AD 1440 [AD 1331 to AD 1639, 2 sigma], University of Washington CALIB program, 1987), because horses were not introduced by Europeans into northern Australia until after the Edmund Kennedy and William Hann expeditions in 1848 and 1872, respectively.

Even though charcoal may look perfectly suitable for dating the implications for precisely determining the age of rock art using only charcoal are considerable. If large pieces of charcoal have 'floated' around a rock shelter or cave floor for thousands of years and are still present today, then the age of carbon in the charcoal is probably unrelated to the time of the painting event. We have no way of determining the length of time between the burning of wood and the use of that charcoal as a paint ingredient. Should we therefore not question the antiquity of charcoal paintings throughout the world (Table 1, Davidson, this volume)? How reliable are the direct radiocarbon dates for Paleolithic charcoal paintings in Cougnac (Valladas *et al.*1990), Cosquer (Clottes *et al.* 1992), Chauvet (Clottes *et al.* 1995), Pech-Merle (Lorblanchet *et al.* 1995), and in Niaux, El Castillo and Altamira (Valladas *et al.* 1992)? Several of these results are linked to dated pieces of charcoal found on the floor of the caves today, and this evidence is used to support the age of the paintings (Clottes, this volume). However, if we look objectively at these correlations we can appreciate that while loose charcoal from the floor and scrapings from a hand stencil or drawing may have identical ages this only proves that the charcoal samples have the same age. There is no way of knowing with absolute certainty from that charcoal when the painting was actually done because the charcoal has been on the present floor and available for use from the time of its creation until today. Taking this example a step further, if we assume that the age of the charcoal on the floor of a cave matches the age of charcoal in a wall painting and the AMS determinations represent the time of painting, then the archaeological deposit immediately beneath the charcoal on the floor should be marginally older than the age of the charcoal. Such a situation should be easily tested by dating the floor deposits, but this has yet to be done convincingly (although an unsuccessful attempt was recently made at the Grotte d'Arcy-sur-Cure; Girard *et al.* 1995).

Results from Organics

No Paleolithic age determinations have been obtained by using organic binders in paints or fossilized microorganic remains in rock surface accretions, but some ancient minimum-limiting ages have been produced from organic matter trapped at the base of rock varnish in some Australian engravings (Dorn *et al.* 1992).

Plasma oxidation not only oxidizes paint organic binder, but it also removes carbon from all other similar organic substances on and in the rock. Although it does not decompose oxalate or carbonate minerals the ozone generated in the reaction chamber attacks bacteria, fungi and algae that inhabit pores and crevices in the substrate. Dating graphite produced by oxidizing carbon from unpainted rock samples can produce ages older than pigment alone (Chaffee *et al.* 1993:71), implying that considerable levels of background carbon exist in mineral accretions and the rocks beneath paintings. Additionally, filamentous saprophytic fungi can temporarily invade paints containing organic binders, use the carbon for metabolism and leave crystalline oxalate and other chemical byproducts. Therefore, although dates can be obtained for organic substances in paints detailed observations, and organic and microbiological analyses are essential prior to extracting the carbon for dating, and multiple dates are necessary to guard against spurious single measurements ("one date is no date": Clottes, this volume).

Fossil carbon from carbonate is not generally a problem in the dating of organics encapsulated in silica skins because X-ray diffraction and infrared spectra analyses have so far not revealed carbonate. A more substantial problem with some silica skins is that they can exfoliate, exposing old silica, organics and fragments of trapped charcoal which can be painted over. Sampling and dating charcoal in drawings immediately above these eroded surfaces without due consideration to the microstratigraphic conformability of the layers will lead to spurious radiocarbon dates (McDonald *et al.* 1990). A radiocarbon date (1,490 ± 50 years BP, CAMS-16755) for algae and diatoms trapped in a layer of silica skin immediately over a red hematite Bradshaw Figure in the Kimberley area of Western Australia strongly suggests that these paintings, allegedly equivalent in age to the Paleolithic (Walsh 1994), were most likely painted during mid-Holocene times.

Laminated Sequences of Oxalate

A conformable sequence of dates for carbon in the oxalate mineral whewellite has been obtained for a thick, laminated gypsum and oxalate crust at the Laura South site in north Queensland (Watchman 1993b). Dates for four oxalate layers are stratigraphically conformable and also consistent with dates for two charcoal layers, positive evidence of regular sedimentation. Lateral concordance and vertical congruency between dates for two carbon bearing substances across 4 m of laminated crust demonstrate that contamination by fossil carbonate carbon and isotopic exchange have not occurred. A date of 24,600 ± 220 years BP (NZA2570, Watchman 1993b) for carbon in oxalate in a stratigraphically equivalent position to bright red hematite paint provides substantive evidence of human painting activity on the rock face at that time. Traces of paintings at about 16,000 and 7,000 years BP in the same crust indicate continuing periodic use of rock paints over a long time span.

Since the presentation of this paper additional dating results have been obtained for a finely laminated sequence of salts, dust and red and yellow paint layers at

Walkunder Arch Cave, Chillagoe, Australia. Ten stratigraphically conformable radiocarbon determinations spanning almost 30,000 years have been measured in a crust only 2.2 mm thick (Watchman & Campbell in press). The oldest evidence of hematite painting in that crust occurs at 28,100 ± 400 radiocarbon years BP (OZA391), with a yellow goethite painting lying at 25,800 ± 280 years BP (OZA392), and two red paint layers at about 16,100 ± 130 (OZA395) and 6,790 ± 70 (OZA398) years BP, respectively. Archaeological evidence so far obtained from the incompletely excavated deposit beneath the painted walls and boulders suggests that people periodically visited the site from at least 16,000 years ago (the base of the present excavation), until the present (Campbell & Mardaga-Campbell 1993).

While the form and style of the paintings represented by these traces of paint are unknown at this time, to suggest that these paint remnants do not necessarily "make" a painting ignores the fact that microexcavation laterally across the surface will reveal the form of the paintings in the same way that widening a trench allows an archaeologist to examine successive sequences of debris in a cave or rock shelter excavation. Prehistorians therefore should not dismiss these results out of hand because the implications are enormous. How many paintings are obscured beneath rock surface accretions at other sites?

Implications and Conclusions

Paleolithic rock art can be scientifically dated despite the restrictions imposed on the archaeometrists, but only after thorough observations of microstratigraphic and microbiological relationships, and by completing organic and inorganic analyses of paint, and its underlying and overlying mineral layers. The archaeometrist needs to find out whether an organic binder is present in paint or if it has been replaced by degradational products, because dating is simplified when a binder exists. When an organic binder is not present datable components must be found associated with mineral layers under and over the painting, but this complicates the dating process and increases the risk of contamination.

Contamination of small samples is a major radiocarbon dating problem, but to date rock paintings and engravings the archaeometrist is forced to take only small samples to avoid damaging the artifacts. Various sources of potential contamination exist, but with care and attention to cleanliness most causes of contamination by younger substances can be avoided. Carbonate minerals can be identified by X-ray diffraction and infrared spectroscopy, and can be removed by acid, but the identity and history of subvarnish organic matter is often uncertain, making interpretation of AMS ^{14}C dates questionable. Humic and fulvic acids, identified by chromatographic means, are eliminated by acid and alkali treatments prior to dating, but the effects of photosynthetic algae, that can preferentially absorb heavy carbon isotopes from fossil sources (carbonate dissolved in groundwater and not in equilibrium with the atmosphere of the time), produce a potentially greater threat to the accuracy of a radiocarbon measurement (Fowler *et al.* 1986:441; Long *et al.* 1992:557). Considerable stress is often placed on the need for pretreating samples prior to radiocarbon dating (Werlhof *et al.* 1995:267), but it is the amount and the nature of the contaminating agent that really matters (Watchman 1995). Knowing the chemistry of the carbon bearing substances that are to be dated, and whether mixtures exist are important because different degrees of pretreatment will produce different results (correctly pointed out by Clottes, this volume). Dating single samples ("One date is no date," Clottes, this vol-

ume), cannot produce reliable results, and even multiple dates from the same figure, especially by scraping several parts of the same figure, may lead to ambiguous outcomes (McDonald *et al.* 1990). "One style is no style" either as we have seen over the years (Bednarik 1995; Clottes *et al.* 1990; Lorblanchet *et al.* 1990), so what should be done?

To increase the reliability of dating Paleolithic rock art the archaeometrist should ideally measure replicates from the same sample, repeat measurements on different samples from the same figure, establish a conformable sequence across a painting or engraving and measure background and maximum ages of adjacent unpainted and unengraved rock surface accretions. I believe the only way to establish reliable ages for Paleolithic rock art is through the systematic and scientific use of a combination of dating methods carried out by separate research teams working independently on finely laminated rock surface accretions (canvas and varnish), on stratified floor deposits, and on paint components. We should not be relying on stylistic estimates or on measuring the age of single charcoal scrapings (as has happened until now). However, funding limitations, politics, conservation aspects and practical limitations may not make these exemplary procedures practicable.

New methods for dating rock surfaces and rock art are being developed and refined, and eventually it should be possible to date a figure or stylistic sequence using two or more independent methods. There are no simple solutions in the dating of rock art, and no single archaeometric method is superior to the others because each sampling situation is different, and analytical and technical adjustments must be made according to the circumstances. Prehistorians wishing to use archaeometric methods for dating rock art need to be aware of all the assumptions and other influences (including their own biases) that are likely to affect the dating results and their interpretations. We now know the limitations of different sampling, preparation, pretreatment and analytical procedures used by archaeometrists and we understand more about Paleolithic paint recipes, sources of contamination and ancient rock surface accretions, so we are in a good position to date rock art absolutely. Prehistorians may now be at a watershed in the way they view their existing stylistic chronologies and theories about the evolution of Paleolithic rock art, and hopefully, reliable scientific dating evidence will play a significant part during that reevaluation.

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New Laboratory Techniques and Their Impact on Paleolithic Cave Art

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A Brief History of Paint Analysis

Early in the twentieth century, as soon as Paleolithic cave art had been accepted as genuine by academics, archaeologists turned to laboratory techniques to determine the paint constituents used. Henri Moissan, a Nobel Prize winning chemist, worked on pigments from two caves in the Dordogne, Font-de-Gaume and La Mouthe (Moissan 1902, 1903). His analysis determined that the paints used consisted of hematite or manganese oxide mixed with calcite and small grains of quartz. He could find no trace of any organic matter that could have been used as a binder. At about the same time (1902), another researcher, Courty, obtained similar results for red and black pigments from Laugerie-Haute, also in the Dordogne (Clottes *et al.*1990a: 171).

From then on the problem of what had been used for paint was largely considered solved. For decades the Abbé Breuil characterized the paintings by visual observation and when he did refer to the sources of the paint, he mentioned only discoveries of paint materials in contemporary archaeological levels (Breuil 1952:45). It was not until the seventies that a renewal of interest in the subject led to a number of physico-chemical analyses of samples lifted from Paleolithic wall paintings (Vandiver 1983), as well as to analysis of fragments of coloring material such as those found inside shells full of paint in Altamira (Cabrera-Garrido 1978) or in the form of lumps of hematite bearing traces of use, discovered in Lascaux (Couraud & Laming-Emperaire 1979). Claude Couraud also experimented with various types of paint and binders in order to reproduce Paleolithic paintings (Couraud 1982, 1988).

A flurry of analyses followed in the eighties, both for portable art and for wall art (see Clottes *et al.* 1990a: 171-172). In particular, four samples from the Salon Noir in Niaux (Ariège) were studied and determined to contain burnt wood, probably juniper. The conclusion drawn was that some animals represented in the Salon Noir had been

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done with charcoal rather than painted with a brush as Breuil and everyone since had assumed (Brunet *et al.* 1982). Michel Lorblanchet began a series of analyses on paintings in the Lot, at Marcenac and especially at Cougnac (Lorblanchet *et al.* 1988). The paint on some objects from the Upper Magdalenian levels in the cave of La Vache (Alliat), next to Niaux, was found to have been made with a mixture of pigments and minerals, the latter used as extenders (Buisson *et al.* 1989). This discovery inspired the paint analysis at Niaux which will be discussed in greater detail.

Present Day Techniques

Several advances have been made in methods of paint analysis. Most importantly, it has now become possible to lift samples so small as to minimize radically any surface damage to the paintings. Photographs taken before and after show sampling hardly visible to the naked eye. This means that the paintings to be studied can be chosen as a function of testable hypotheses derived from a coherent research plan, whereas earlier the selection of paintings had depended solely on the presence of paint thick enough to preclude damage to their appearance. Now the restrictive concerns of conservation can readily accommodate the rigorous demands of sound research methods: what is desirable has become feasible as well (Clottes 1993:223-224).

Another significant development has been that paint samples need no longer be destroyed in preparation for analysis. Instead they can be studied in their original state and then preserved. Since the verification of results no longer requires the removal of more paint, the analyses of samples carried out at one laboratory can now easily be sent for replication to another. Once again, the requirements of conservation and of good research design can both be met (*op. cit.*:224).

Even though samples are minute, it is of course advisable to confine what is lifted to that strictly necessary for providing answers to well-defined problems. Optical inspection, nowadays augmented by macrophotography and direct examination by means of a specially adapted binocular microscope, helps determine how paint was applied to the cave walls and detect superimpositions. Above all, such inspection enables researchers to check for homogeneity in the composition of each figure and to determine whether or not further laboratory analyses are needed. Direct examination can thus eliminate the systematic taking of multiple samples or it can show that new samples are indispensable. Recently, direct optical analysis of the paint constituents without any sampling has been carried out in the Quercy caves (Lorblanchet 1994a:167).

The analyses done at the Laboratoire de Recherche des Musées de France in Paris are of particular interest in that they not only provide information about chemical composition but also about quantities and proportions of the paint constituents, as well as about texture. In Niaux, for example, some paint components had been finely ground while others had been left more coarse. These analyses can even detect trace elements, which is particularly useful in establishing where the original paint materials were collected.

Among paint constituents, one of the most essential is a binder to ensure cohesion and fluidity. After much speculation and a few experiments (Couraud 1988), analyses have been carried out on samples taken in four caves only, all in the Ariège (Fontanet, Les Trois-Frères, Enlène, Le Réseau Clastres [Figure 1]). These analyses are so few because determining the exact nature of the binder is a highly delicate process involv-

FIGURE 1. Black horse from Le Réseau Clastres (Niaux, Ariège). No evidence of a binder was found for the animals in Le Réseau Clastres, probably because they were quickly painted with whatever materials were at hand. Photograph by R. Simonnet

ing long and costly laboratory work, and also because samples can very easily be contaminated, for example, by someone touching a painting with bare hands. For this reason sampling can only be done when there is reasonable certainty this has not been the case (Pepe *et al.* 1991).

The purpose of this paper is not to describe the laboratory procedures and their technical details, but rather to show how they have been applied to Paleolithic cave art and how their results have been interpreted. Concerning the techniques employed, see Menu & Walter 1991; Clottes *et al.* 1990a, b; Clottes 1993; Lorblanchet *et al.* 1990a, b; Menu *et al. 1993;* Pepe *et al.* 1991.

Another important advance in laboratory techniques has been the use of an accelerator (Accelerator Mass Spectrometry, or AMS for short) for direct dating of prehistoric paintings. After initial attempts in South Africa (Van der Merwe *et al.* 1987), a series of datings soon followed in Australia (Loy *et al.* 1990), North America (Russ *et al.* 1990), and also in Europe (Lorblanchet 1990a, b; Valladas *et al.* 1992). In all, 26 dates have been published for 19 different figures in six caves in France and in Spain (Clottes 1994b; Clottes in press; Lorblanchet 1994a, Clottes *et al.* 1995).

On other continents, where the location of the art, the nature of the rock and the climate differs widely from what is known in Europe, other dating methods have been developed in an attempt to obtain direct dates (Franklin 1993). A number of substances, among them blood, have been identified as binders in Australia (Bednarik 1994:161). Most can be dated by AMS. Dating of the varnish on petroglyphs has been done in the Americas and in Australia both by the cation-ratio method (Dorn 1992) and by radiocarbon dating when small pieces of organic matter are trapped beneath the varnish and can be extracted by laser and AMS dated (Nobbs & Dorn 1988; Watchman & Lessard 1992). This provides a minimum date for the varnished petroglyphs. In Europe no petroglyphs have yet been dated by laboratory methods, except for some very recent attempts, as yet unpublished, at Foz Côa in Portugal. Sample analyses may also bring unexpected information, such as pollen of forty plant species from a Chinese rock painting at Cangyuan, in Yunnan province, or the discovery by

Alan Watchman of up to ten layers of paint at sites that appeared totally undecorated to the naked eye (Bednarik 1994:161-162).

One fascinating possibility as yet unexplored in Europe is obtaining ancient DNA from paintings or from finger tracings. This might give information as to which species of animal had provided grease or blood as binders. This technique might even determine the individual person(s) who left finger tracings or hand stencils: Was it the same person for several figures, or persons belonging to the same family? This type of approach was considered for the Cosquer Cave (Marseille) in the fall of 1994, but was given up because of the overly large samples the physicists required.

Paint Analysis: Its Uses and Limitations

The latest research in wall art paint analysis for European caves has been carried out in several laboratories: by Michel Menu and Philippe Walter at the Laboratoire de Recherche des Musées de France, by Pamela Vandiver at the Smithsonian Institution, and by Michel Labeau at the Ecole Nationale Supérieure de Physique de Grenoble.

Exposing Forgeries

It is widely believed that "one of the most crucial advantages of the current revolution in pigment analysis and in dating techniques is the growing ability to expose or authenticate fakes" (Bahn 1993:58), and Paul Bahn, for example, wishes for analyses of some of the Rouffignac paintings about which he still entertains doubts. What he writes is true for direct analysis, but his confidence is less well founded with respect to pigment analysis.

Physicochemical analyses have recently been used in Spain in an attempt to determine whether or not the Zubialde cave paintings, discovered in 1990 in the province of Alava, were genuinely Paleolithic. As soon as the cave of Zubialde was discovered and a few photographs published in the press, two English specialists (Peter Ucko, Jill Cook) said that the paintings were fakes as they looked strange in several ways because of proportions and style, the presence of unlikely animals and signs, and the diversity of the fauna represented. The Spanish prehistorians in charge (Ignacio Barandiarán, Jesus Altuna and Jose Maria Apellániz) wrote in their detailed preliminary report (6 March 1991) that they had not found anything questionable about the works of art but they advocated further study and analysis. On 10 June 1991, I was fortunate enough to be allowed inside the cave for a long close look at all the paintings. The figures were spectacular and impressively well done, but the complete absence of weathering on any of them made me entertain serious doubt as to their authenticity. The next day, I wrote to Barandiarán, "if, as is alas possible, this is a fake, I doubt that the pigment analyses will bring any certainty about it, as the quality of the art is such that a would-be faker would certainly have used natural pigment." (11 June 1991). A similar opinion had been expressed by Jill Cook in an interview with *The European* (22-24 March 1991:3).

Michel Menu and Philippe Walter went to the cave five times to lift eighty samples which they then studied with their usual techniques. They found that manganese oxide had been used for the black figures and iron oxide for the red. The similarity of the results to what they had seen in Pyrenees caves such as Niaux convinced them that the Zubialde paintings were genuine. This sustained the hopes of our Spanish colleagues for months, until Manuel Hoyos of the Instituto de Geología in Madrid found out that

some strange remnants removed from the walls were in fact synthetic fibers identical to those in modern plastic sponges and that they held traces of pigment. A sponge had been used to spread some of the paint in an attempt to weather it. In addition, various fragments of animal hair had been found near or even in the paint. Hoyos's discovery clinched the matter. The Zubialde paintings were fakes (Altuna *et al.* 1993:80).

This recent experience once again highlights the fact that the results of analyses do not necessarily speak for themselves, except in the simplest cases, such as the discovery of the plastic sponge fragments. Even the presence of animal hairs and spider legs was not enough to betray the forgery: it only posed the problem of how long tiny animal remains could survive on the cave walls. As for the pigment analyses, they revealed nothing more than that natural pigments had been used: No other inference should have been drawn.

In the cave of Niaux, the pigment in a fissure colored bright red both inside and out (Figure 2) was analyzed and found to consist of pure hematite with no quartz grains or extender. This set it apart from the rest of the Niaux paint analyzed, and so we doubted its authenticity, all the more so as it had never been mentioned by those who first studied the cave and also because two initials, 'TD,' until then considered a later addition, could be seen to the right of the fissure (Clottes *et al.* 1990b:22). Our conclusion of a recent forgery, then, depends as much on external elements as on the analysis itself.

Information on the Techniques Used by Paleolithic Artists

Several attempts have been made to determine what kind of binder was used for the paint. The analyses dealt with lipids such as triglycerides, the main constituent of oil or grease, and with sterols, the molecular structure of which makes it possible to say whether they are of animal or vegetable origin. The technique used by Claude Pepe was gas chromatography, verified by mass spectrometry and fragmentometry, a particularly sensitive method (Pepe *et al.* 1991:933).

In the Réseau Clastres (Figure 1) the analysis was negative, probably because the binder used was water. Water could be readily obtained on the spot, and its use would support the idea that the Magdalenians made only quick expeditions into the extensive Réseau Clastres, as they had to the deeper galleries of Niaux. There, far underground, they did not take as much time and care doing the paintings as they had in the Salon Noir of Niaux, a place nearer the entrance and easier of access where they returned often and stayed for longer periods.

At Fontanet, Enlène and Les Trois-Frères, Pepe's analyses revealed the presence of organic fatty elements in the paint used. In the last two caves, which are very close to each other and which were used by the same people (Bégouën & Clottes 1991), the fatty elements are identical. They were derived from plants, whereas at Fontanet their origin was animal. This means that although the source of the binders might vary, Magdalenian artists used genuine "oil paint" to realize their work in the caves of the Ariège (Pepe *et al.* 1991; Clottes 1993:226, 229). The identity of the binders used in Enlène and Les Trois-Frères reinforces the idea of links between the two caves.

The possibility of complex recipes for the paint was first contemplated for Lascaux, after minerals – generally quartz – had been systematically found in the pigments used (Ballet *et al.* 1979). Quartz would thus have been used as an extender. From her own analyses, Pamela Vandiver (1983) also concluded that mineral extenders had been added to ensure better control over the color and fluidity of the paint. After extenders had been found in the paint on some objects of the late Magdalenian in the cave of La Vache, it was tempting to check if the artists of Niaux had used similar

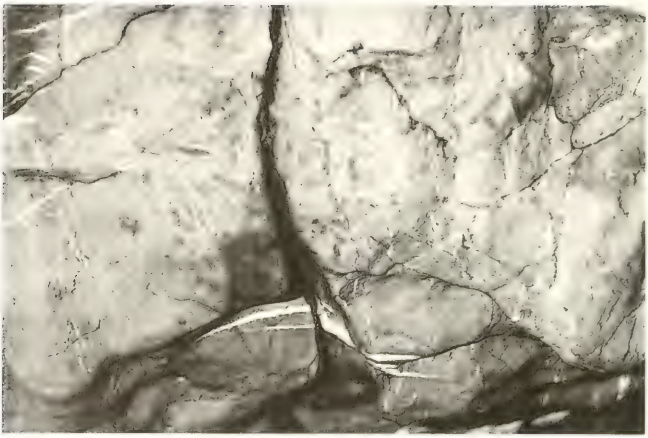

FIGURE 2. Niaux (Ariège). In one of the deeper galleries, a fissure has been colored in red. Paint analysis revealed that this was done with pure hematite and not with a complex paint, contrary to all the other figures in the same cave. This is probably a modern fake. Photograph by J. Clottes

or different recipes, since Niaux is right across the valley from La Vache, a bare half-hour's walk.

The first analyses were a big surprise. Not only had the La Vache recipe been used, but two others had as well. At La Vache and for most of the figures in the Salon Noir as well as for the Fontanet paintings, as we learned later, an extender consisting of potassium feldspar had been added to manganese oxide or to charcoal for the blacks and to hematite for the reds. In Niaux, in addition, a number of figures had been painted with two other extenders: One consisted of talcum and the other, more widely used, of a large amount of biotite with potassium feldspar. As at Lascaux, a highly variable number of quartz grains were also found in the paint. We think that the quartz found in the samples is a consequence of the grinding and that other minerals constituted the actual extenders (Clottes *et al.* 1990b:22). This all shows how sophisticated the techniques of the Magdalenian painters were.

Niaux

When we chose the figures for paint samples, we had several questions in mind. Was the same paint used for both animals and signs? Among the geometric signs, claviforms are typical of Magdalenian art in the Pyrenees and are supposed to belong to one short period, the Middle Magdalenian; in Niaux, were they all done with the same paint? Are the various panels in the Salon Noir homogeneous? Could any differences be detected between the Salon Noir and the most remote galleries, or between horses and bison and other animals?

We discovered that the composition of the paint did not vary with particular subjects or locations. Both animals and signs, including claviforms, had been painted at times with recipe B (biotite) and at others with recipe F (potassium feldspar) or with recipe T (talcum). The two main recipes, B and F, were found in the farthest galleries as well as in the Salon Noir, where they sometimes appear on the same panel. This suggested that the choice of recipes was not determined by either theme or location, and so might have a chronological value, with one recipe having replaced the other over time. This could be checked. We already knew from the ten samples analyzed at La Vache that recipe B had been used during the Upper Magdalenian. Eight more analyses were done from samples well-dated to the period immediately before, the Middle Magdalenian, in the caves of Enlène, Les Trois-Frères and Le Mas d'Azil, all in the Ariège. They were all found to include the F recipe, which seems then to have preceded the B recipe (Clottes *et al.*1990a, b).

In Niaux, however, three direct radiocarbon datings from painted figures provided ambiguous results. Those figures had all been painted with recipe B. The paint on one bison was dated to 12,890 BP ± 160 (Gif A 91.319) and an isolated black line on the same panel to 13,060 BP ± 200 (Gif A 92.499). These dates tally perfectly with the known dates at La Vache, while the paint on another bison gave a date of 13,850 BP ± 150 (Gif A 92.501) (Clottes *et al.* 1992). The paint from that bison consisted mainly of charcoal with only faint traces of biotite. Does this mean that the B recipe originated during the Middle Magdalenian, far earlier than was thought, (a possibility which had already been addressed [Clottes 1993:232]), or that the two main recipes had been used simultaneously, or that the gap between the two radiocarbon dates might not be as wide as it first seemed (see below about direct AMS dating)? Unfortunately, no more direct AMS dating could be done at Niaux for conservation reasons, so that there is no date for any figure painted with the F recipe.

The Niaux paint analyses provided other unexpected information. For example, all the animals and signs on an entire panel in the Salon Noir (Panel 6) (Figure 3), the one with the later radiocarbon dates, were painted with the B recipe, probably during the same period. However, trace elements were found to vary and two types of mineral associations were detected: rutile with aluminum silicates, or albite alone. It would therefore appear that while the same recipe was used, the source of basic raw materials changed during the production of this panel; either it was not painted in a single session or it was the work of different artists using the same recipe but not the same mix, or both (Clottes *et al.* 1990b:22-23).

In the Salon Noir, sample analyses showed that paint had been applied over a sketch done first with pure charcoal. This was later confirmed by optical examination and macrophotographs (Menu *et al.* 1993). Not all the Niaux animals were sketched before being painted, however. In the Salon Noir, sketches had been done only when the B recipe had been used, never when the paintings were done with the F recipe. In the remote galleries and in the Réseau Clastres, no sketching was done, even for the B-recipe animals. A preliminary sketch suggests premeditation, advance planning and a great deal of care which tallies with what we know of the Salon Noir, where the animals are large, numerous and very detailed. It was a sort of sanctuary where people went repeatedly, especially during the Upper Magdalenian, and where they took time to create the paintings, whereas the remote galleries may have been explored very few times by artists who did not linger and who drew animals here and there in a much less sophisticated way (Clottes *et al.* 1990b:23-24; Clottes 1974, 1995).

Cougnac

At Cougnac the first researchers to work in the cave noticed that several red figures had been repainted in black and they expressed the view that this happened probably not long after the animals had first been painted in red, even if several artistic phases could be distinguished in the composition of the art (Méroc & Mazet 1956:33-34). Recent studies confirmed a series of applications on the walls (Lorblanchet 1994a:177-178), and paint analyses show that the early group of red figures had all been painted with the same pigment which included the same minerals. That pigment had been taken from a heap of ocher still visible on the floor of the chamber. Small brown figures were added later. Their color varied and so did their composition: some had been done with hematite with 1 or 2 % manganese while in others manganese could reach up to 30 %, which made a much darker color. Black animals were then added and a few red ones were repainted *(op. cit.*:178).

Michel Lorblanchet rejected the idea that the story of the Cougnac animal paintings could be reduced to three distinct "phases" because of the heterogeneity of the brown figures and especially because of a series of widely spaced radiocarbon datings. According to him, the Cougnac art includes real compositions with animals

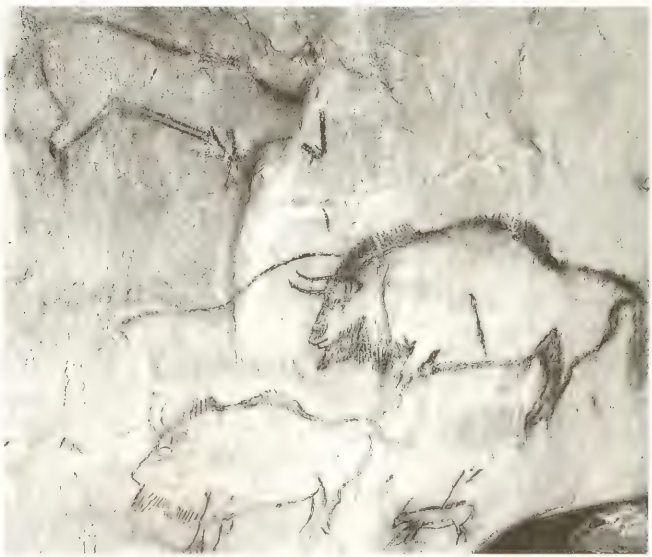

FIGURE 3 The Salon Noir, in Niaux (Ariège). All the animals of Panel 6 were painted with the same recipe (B). The small vertical line just above the horns of the bison in the middle was dated by AMS to 13,060 BP ± 200. Photograph by N. Aujoulat

done all at one time, but also partial retouching of some of them, the addition of new figures and of numerous traces testifying to a ritual use of the place (*op. cit.*:179). The most fascinating example of such traces is the way Paleolithic people at unspecified periods dipped the tips of their fingers in the pile of ocher on the ground to leave their marks on the walls. As to the model proposed by Lorblanchet of a cave frequented and reused for millennia, it is rather close to the Abbé Breuil's views which had all but been discarded since the structuralist work of André Leroi-Gourhan in the sixties. Lorblanchet's model relies heavily on the interpretation of the AMS direct dates obtained in Cougnac.

Direct Dating by AMS

The main advantage of the AMS technique is that it has now become possible to obtain dates from very small amounts of organic material, whether lifted from the paintings themselves or from objects closely associated with the paintings. Being able to date a figure directly is certainly a huge advance over earlier methods and when the first results were published, this was hailed as an important breakthrough in the field of rock art studies. It was felt that the dates were "well-founded data" (Lorblanchet 1992:XVII) which allowed for "more objective dating" (Lorblanchet 1990a:10) that would "in due course revolutionize rock art studies" (Bednarik 1992:148). Dating figures directly would enable specialists to construct chronological frameworks, first on a cave-by-cave, region-by-region basis (Franklin 1993:8). The exact duration of styles, techniques, particular conventions and motifs would at last be determined (Lorblanchet 1993:69). Finally, when enough absolute dates became available, they would provide an overall framework into which undated paintings and engravings could be fitted (Bednarik 1992:148; see also Valladas *et al.* 1992:69). The routine application of this method to rock paintings would then make its study more scientific (Bednarik 1994:163).

It could be argued that the new dating methods will dramatically change our outlook in a short time, as happened in the fifties and sixties when radiocarbon dating was systematically applied to archaeological sites of all periods, providing surprises, upheavals in current hypotheses, and a renewal of theories and methods (Clottes 1993:21). This is debatable (see below) even if the score or so of direct AMS dates so far published from five Spanish and French caves have already provided a number of interesting findings.

Direct Dating in the Caves of Niaux, Altamira, Castillo, Cosquer and Cougnac

At Niaux, as we have seen, two dates corroborated the contemporaneity of some of the Salon Noir paintings with the living site of La Vache, while another date – earlier by one millennium – seemed to indicate long, repeated use of the sanctuary. Unfortunately, some of the problems raised by the discrepancy between the dates could not be solved due to the practical impossibility of lifting and dating more samples.

In Spain, three dates ranging from 13,570 BP to 14,330 BP ± 190 were obtained at Altamira, and two others around 13,000 BP (± 170 and ± 200) at El Castillo, all for very similar bison. This confirmed that the bichrome animals at Altamira were Middle Magdalenian, as had long been assumed for stylistic reasons (Leroi-Gourhan 1965), and also that the technique might have lasted until the Upper Magdalenian

(Valladas *et al.* 1990). Lorblanchet challenged the interpretation of the Altamira panel as an Early Style IV composition because, according to him, the dates were interpreted through the bias of Leroi-Gourhan's chronological and stylistic system, which led our Spanish colleagues "to neglect a gap of more than seven centuries between the dated bison" (Lorblanchet 1994a:173). In fact, it is obvious that with a two-sigma interval of ± 380 (a 95 % chance of being within the right time span), the three dates are either very close to each other or even overlap for long periods, which they do in any case with a three-sigma interval (a 99 % chance). This overconfidence in the precision of the radiocarbon dating method may lead one to rather rash conclusions, as we shall see with Cougnac.

At Cosquer, seven dates have so far been obtained from three animals and one hand stencil with incomplete fingers. The samples from two of the animals and from the stencil were divided into two parts which were then dated separately. The main results (Clottes & Courtin 1994) were:

1) The paint from the hand stencil was both times dated to 27,110 (± 350 and ± 390). This was first corroborated by two other dates for charcoal from torches (27,870 BP ± 430 and 26,360 BP ± 400). Then, at Gargas in the Pyrenees, a fragment of bone found with many others in a crack next to hand stencils with incomplete fingers identical to the ones in Cosquer was dated to 26,860 BP ± 460 (Clottes *et al.* 1992). Those converging dates set the beginning of hand stenciling at an earlier date than expected.

2) We could establish that there had been at least two different phases in the art of the Cosquer cave and that the animals were later by several millennia than the stencils and finger tracings. We had already established these two phases from evidence of superimpositions. The AMS dates from the animals plus another one from charcoal on the ground brought a welcome corroboration and set Phase Two between 18,500 and 19,200.

3) A well-known stylistic convention, supposedly characteristic of the Middle Magdalenian, was moved back about 6,000 years. That convention consisted in depicting the difference in color between the belly and the upper part of the body of horses in the form of a flattened M (Figure 4).

4) Our attention was also drawn to some of the limits of the AMS method. Samples must be purified before analysis. As they are minute, a balance must be struck between an excess of purification which might destroy most of the sample and preclude analysis, and insufficient purification. The first dating of a painted bison gave 18,010 ± 190. As the dates for the other animals in the cave were older by half a millennium or more, it was then decided to do another dating on the second half of the sample, which had been preserved, and this time to push the purification further. The new date was 18,530±180, which tallied more closely with the others. This means that if two conditions had not been met, that of other dates available for the same art context and of a relatively large amount of charcoal, a date too recent by more than 500 years would have been accepted since there would have been no reason to question it.

At Cougnac, two main results were achieved by AMS dating. First, two dots were dated to around 14,000 BP, and a bone on the ground to about 15,000 BP (Lorblanchet 1994a, b). This was a surprise, since the art had always been considered stylistically homogeneous and attributable to Leroi-Gourhan's Style III, about 17 to 18,000 BP. The three "late" dates, however, need not contradict the postulated stylistic homogeneity, as some people might well have gone into the cave several millennia after it was painted and in addition to leaving a few bones, might have made a few drawings nondescript enough to fit in with the older ones.

FIGURE 4. In the Cosquer Cave (Marseille), the horse on the lower left of this panel was dated to 18,840 BP ± 240 and 18,820 BP ± 310. On the one at top right, the difference in color between the belly and the upper part of the body has been depicted by leaving the belly blank in a sort of flattened M, a convention so far supposed to be much later. Photograph by A. Chêné

Then, still at Cougnac, four dates were obtained from two *Megaloceros*, a male and a female close to one another (Figure 5). This time, they were much earlier than expected: 19,500 BP ± 270 and 25,120 BP ± 390 for the female, while the dates for the male were somewhat more consistent with one another: 23,610 BP ± 350 and 22,750 BP ± 390 (Lorblanchet 1994a, b). At Cougnac, contrary to what had been done at Cosquer, it was not the same sample that was split and dated separately. Because of the lack of pigment, several extremely minute samples were in each case scraped and mixed.

Those results could be interpreted as evidence that part of the art of Cougnac was much earlier than had been thought, which was no mean achievement. However, Lorblanchet went much further. He argued that the two *Megaloceros* were "no doubt not contemporary" (Lorblanchet 1994c:7). Besides the discrepancy in the dates, he based his opinion on the female having been done with charcoal while the male had been "drawn with burnt bone" (1994c:7), an unwarranted assumption given that the specialist who analyzed the pigments mentioned "an undetermined kind of pigment (male *Megaloceros*)" since neither the hypothesis of charcoal nor that of burnt bone could be confirmed (Labeau 1993:72, 73). In order to explain the wide difference in dates for the female *Megaloceros*, Lorblanchet assumed that this was most probably due to repainting and retouching rather than contamination, and that the same was likely to be true for the male (1994c: 7; 1994a: 171). If he was right this would be of the utmost importance as it would reveal long-lasting rites of rejuvenation of the paintings, similar to those known all over Australia.

Unfortunately, alternative hypotheses can be proposed. The minute size of the samples as well as the fact that they did not consist of one solid lump of charcoal but were scraped from different locations makes the possibility of contamination likely for the female despite all the precautions taken. As for the male, the two dates do remain compatible with one another within a two-sigma range, with an overlap of more than 600 years. Therefore there is no need to postulate that the two black *Megaloceros* were painted and repainted at widely spaced intervals.

In other words, at Cougnac there is definite evidence: 1) that a few animal figures are more than 22,000 years old and were probably painted during the Late Gravettian or the Early Solutrean; 2) that between 14,000 and 15,000 years BP the cave was frequented once again by people who left bones, dots and perhaps other traces. As to the repainting of certain animals, this is visible from close examination of the figures and it certainly did happen (Méroc & Mazet 1956; Lorblanchet 1994a:178), but present-day methods are not fine enough to pinpoint the exact moment(s) when this occurred. For all we know, it might have been over a more or less extended period of time and

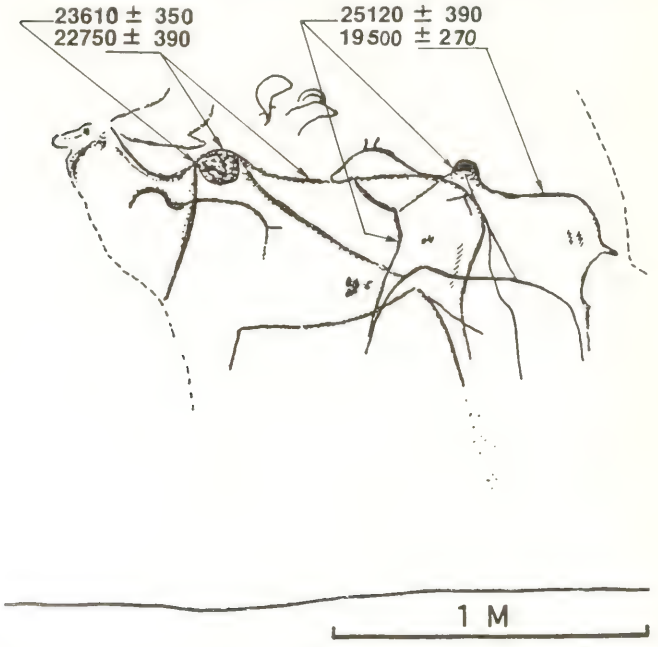

FIGURE 5. Male (in front) and female black *Megaloceros* at Cougnac (Payrignac, Lot), with arrows showing where the samples for AMS dating were lifted. From M. Lorblanchet (1994a.)

even at intervals of hundreds or thousands of years' time as Lorblanchet supposed, but there is an equal possibility that immediately after the earlier outlines had been sketched, people might have retouched some figures in the course of ritual use which Lorblanchet himself thinks the cave was put to (Lorblanchet 1994a:179), or for any other reason.

The Limits of AMS Direct Dating

From the few examples quoted above, some limits of AMS direct dating of Paleolithic paintings are apparent. It has often been said that the method is statistical, *i.e.*, it is only reliable within wide enough margins and, in addition, provided a number of dates corroborate one another. This is true for all archaeological samples analyzed, irrespective of their nature. Analyzing rock paintings, however, is far more difficult than dating an archaeological living site.

First, because of the necessity of not damaging the art, only minute amounts of paint can be lifted. This means that in most cases, physical scientists in their laboratories are obliged to work on the fringes of what the method allows. The risk of error due to contamination, which can produce dates either too early or too late, is far greater with tiny amounts of material than with the relatively large quantities of charcoal or bones that can be retrieved from many archaeological sites. Second, if laboratory error or initial contamination occurs when dating a layer from a habitat, it is immediately apparent because of the presence of artifacts that enable one to assign a tentative date to the site: it can be checked against other analyses. Not so with rock art, where a direct date rests alone, with no possibility of other validation. In the best of cases it means that we have dated one figure or even one portion of a figure, if there was repainting. It does not mean that the entire panel or the whole cave is dated to the same period. If for some reason or other the date is wrong, and this has been known to occur in a number of cases in traditional archaeological contexts for which thousands of dates are now published, we have no way of checking it at present. Only when a date can be confirmed by different methods should it be considered valid.

When no other corroborating method is available, we must keep in mind the old saying "one date is no date." It is just one piece of evidence that must be kept in mind but should be considered tentative until other dates have been obtained and a picture emerges, as in the case of well-dated archaeological cultures. Will this happen one day with rock art? It is far from certain, as conservation constraints make it impossible to lift as many samples as are needed. Even once techniques have improved, there will always be a difficult balance to strike between the size of the sample and the trustworthiness of the analysis. As we have seen, the smaller the sample, the greater the possibility of error due to contamination, whatever the method used (Clottes 1994a: 21).

Conclusion

In 1992, one of the symposia at the Cairns International Conference on Rock Art was called: "The Post-Stylistic Era: Where Do We Go From Here?," a provocative title which implied that with the recent advances new technologies permitted, especially paint analyses and AMS dating, stylistic studies had lost their importance and had been or would soon be replaced by more scientific methods. Such optimistic confidence in the "hard" sciences is certainly understandable. However, after several

years of practice, the state of rock art studies for the Upper Paleolithic of Europe is far from ideal. Two dozen dates are now available for 19 figures in six caves, when nearly 300 caves and many thousands of paintings and engravings are known. In order to achieve some of the aims of modern research, for example, fixing the exact duration of particular conventions and techniques, the different phases in the art of a cave, and the relationship between various caves and among different regions, a satisfactory statistical probability must be reached. To do so, it would obviously be necessary to have sufficient dates and paint analyses. This would hopefully avoid making unwarranted assumptions or straying too far in one's interpretations, as is easy to do when the results are too few and do not conform to expectations.

Two difficulties stand in the way. One is the funding and the involvement of specialized laboratories: Will they be willing to make scores of analyses per cave? And if they are, how will the cost be met? The second difficulty, even more serious, is that of sampling possibilities and the necessity of preserving the art. In Niaux and in Cougnac it is no longer possible to find enough charcoal, half a milligram, to meet the requirements for new AMS dating. This is also the case in Lascaux and in many other caves, which explains why results are still so few.

AMS dating, paint analyses and other laboratory techniques have already brought a number of fascinating results and raised both hopes and problems. They will no doubt assume an even greater place in rock art research, especially if economic obstacles do not stand in the way and if technological advances allow the lifting of still smaller samples. Many new discoveries, both welcome refinements and a few upheavals, may be expected during the years to come. However, it us doubtful that a significantly different picture of Paleolithic art will emerge before a great many more years.

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Paleolithic Image Making and Symboling in Europe and the Middle East: A Comparative Review

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The long held belief that "art," or image making, began in Europe as a "species" event during the Aurignacian period at the time that anatomically modern humans displaced the Neanderthals has begun to dissipate as the still rare archeological evidence for early image making has begun to be found in the Middle East, Africa, Asia, and Australia. The evidence that Neanderthals may have produced beads in France during the Chatelperronian, perhaps as a tradition derived from contemporaneous "modern" human, has also validated an argument that I have been making for a quarter of a century, that the *capacity* for diverse forms of symboling was not the result of a sudden, stochastic, neurological "re-wiring" of the anatomically modern human brain, a change that supposedly made complex modes of symboling, and even modern language, "suddenly" possible. I had also long argued that the "creative explosion" of the European Upper Paleolithic was not the "origin" or "beginning" of "art" (Marshack 1972,1991a). Both arguments were derived from direct, microscopic analysis of the complex and variable archeological symbolic materials.

The European Aurignacian

In the 1960's I conducted the first study of the Aurignacian (*ca.* 32,000 BP) ivory figures from Vogelherd, Germany. Microscopic study not only revealed a remarkable skill and capacity for animal representation, but the presence also of diverse and complex modes of image *use* "over time," involving both long-term curation and different modes of periodic over-marking. At the same time, my microscopic study of other classes of Aurignacian artifacts documented the presence of a tradition involving the non-decorative accumulation of incised sets and subsets, often on fragments of waste or scrap bone or broken tools. These latter artifacts suggested the presence of a variable tradition of Upper Paleolithic "notation." The unexpected recent acknowledg-

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ment of Upper Paleolithic "notation" by the one researcher who had been its most methodological and systematic critic, has reopened for discussion the importance of this abstract, specialized form of early symboling (*cf.* D'Errico and Cacho 1994; D'Errico 1995; but see also Marshack 1995a, 1996 a,b).

These early findings suggested that Upper Paleolithic symboling modes were not always intended as "art," but were often aspects of what I had termed "time-factored" and "time-factoring" symbol systems, systems that marked and differentiated modes of periodic symbolic behavior within these early cultures. The presence of carved vulvas in Aurignacian home sites of the Dordogne, *France*, (*cf.* Marshack 1991b), of vulvas in the Gravettian of east and Central Europe (Marshack 1996c), and the presence of ritual burials indicated other modes of periodic symboling and reference.

These studies of early Upper Paleolithic imagery initiated a wide-ranging microscopic investigation of possible still earlier, pre-Upper Paleolithic symboling in Europe. They documented a production of red ocher in the Acheulian of Beçov, Czechoslovakia, *ca.* 250,000 BP (Marshack 1981) and the carving and curation of a Mousterian "nonrepresentational" oval plaque at Tata, Hungary, *ca.* 100,000 BP (Marshack 1976), traditions that suggested the production and use of symbolic materials at particular times and for particular purposes. If symboling systems helped to mark and structure the periodic, ongoing, cultural tapestries of these early human cultures, then the later Upper Paleolithic "creative explosion" may merely have represented the development of unique "time-factored" and "time-factoring" cultural systems under particular conditions and by use of particular technologies. When the conditions and the context changed, the "time-factored" symbolic tapestry disintegrated and "Ice Age Art" ended.

The Levant

A Middle Paleolithic Engraving

In the 1980's an engraved plate of flint cortex (Figure 1a, b) was excavated from a Middle Paleolithic level near the village of Quneitra, on the Golan Heights (Goren-Inbar 1990). It came from a level dated at *ca.* 54,000 BP, some 15 to 20,000 years earlier than the first images to appear at the European "Middle Paleolithic/Upper Paleolithic transition." During this period anatomically modern humans were living in the Middle East with Neanderthals. There is no evidence that these two groups interacted; but they both used a similar Middle Paleolithic lithic technology, worked skins and wood, hafted tools, had hearths, used red ocher, and buried their dead. Since they were inhabiting the same territory, I assume that there may have been some level of cultural contact or recognition between the two populations, as there was apparently 20,000 years later in France during the brief Châtelperronian period.

Who, therefore, engraved this composition 20,000 years *before* the Upper Paleolithic began in Europe – modern humans or the Neanderthals?

The archaeological chronology of Israel (Figure 2) places Quneitra near the top of the Middle Paleolithic sequence, shortly before the Middle Paleolithic/Upper Paleolithic transition that began in Israel about 47,000 BP, thousands of years before the MP UP transition began in Europe (Marks 1983; Bar-Yosef and Belfer-Cohen 1988). If the cortex was incised by an anatomically modern human, as part of a tradition of image making, did descendants of these modern humans eventually move north into Europe carrying their culture and symboling traditions? The Levantine Neanderthals,

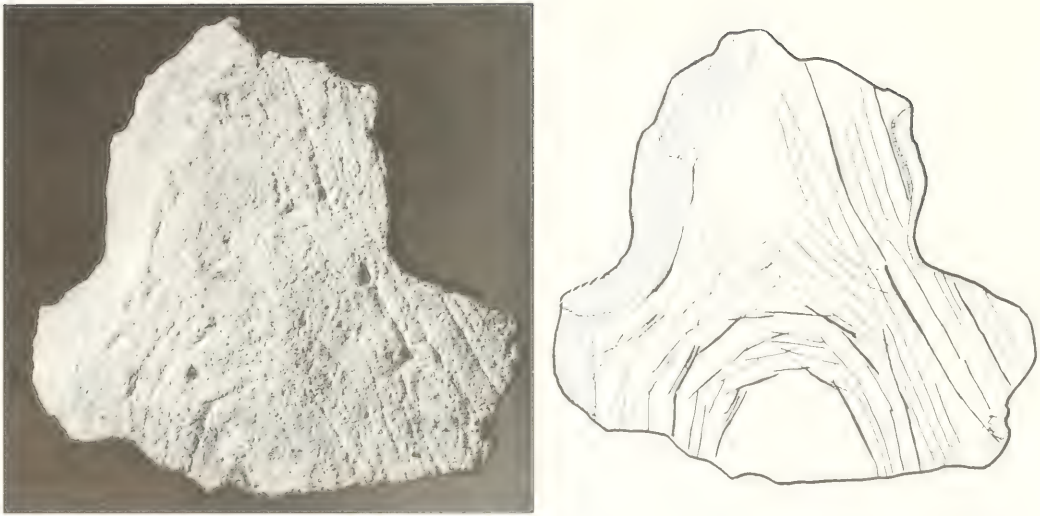

FIGURE 1. a) Quneitra. Flat cortex plate (7.2 cm) incised with four nested semicircles and surrounding vertical lines. Levantine Middle Paleolithic, c. 54,000 BP; b) Schematic rendition of the composition incised on the cortex: individual of the central four semicircles (each making surrounding these and the vertical marks at the left of the stone. The nested arcs semicircles are composed of straight, short, appended strokes. (As determined by microscopy.)

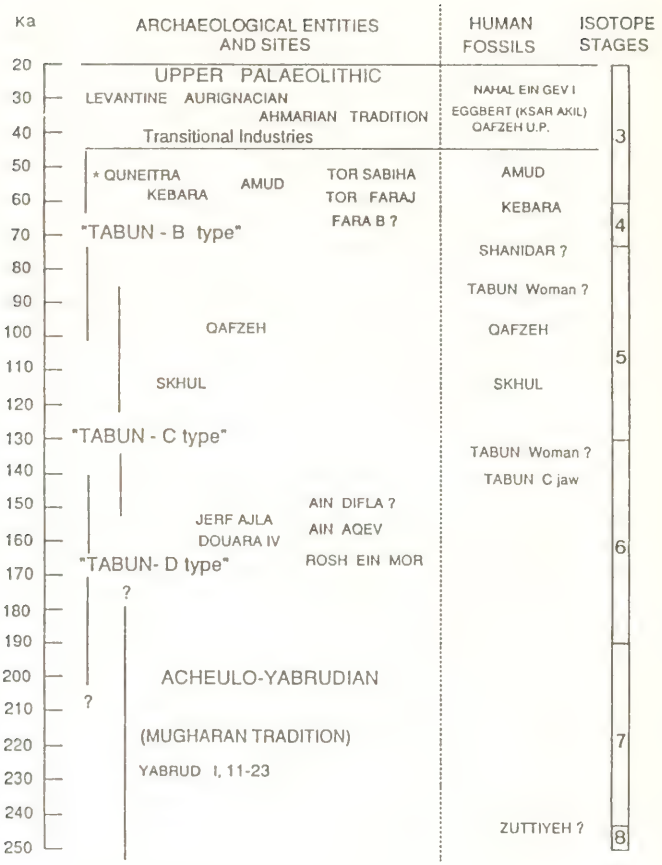

FIGURE 2. Chronological chart of the Acheulian, Middle Paleolithic and Upper Paleolithic sequence in Israel. Quneitra, occurring in the late Middle Paleolithic, is near the top of the sequence, not far from the beginning of the Levantine Upper Paleolithic. A proposed chronology for Levantine sites and human fossils. Question marks indicate the uncertain position of fossils or those which are not yet dated. The apparent overlapping of the Mousterian industries reflects the standard deviations on the age measurements and conflicting dates. The industries are stratified and therefore cannot be contemporary with each other." (After Bar-Yosef 1992:195)

represented by skeletons at Kebara and Amud, were apparently still in Israel when the Quneitra engraving was made, but they would shortly disappear. According to the "Out-of-Africa" hypothesis for modern human origins and dispersal, it was within the period near the bottom of the Israeli sequence (Figure 2), *i.e.*, between *ca.* 200,000 and 100,000 BP, that the "moderns" began to move north, first into the Middle East and then into Eurasia. I shall discuss artifacts from each period in this evolutionary and cultural sequence.

The Quneitra Engraving

Microscopic study of the Quneitra engraving reveals an extraordinary skill and sophistication. Holding the small stone (7.2 cm) in one hand, presumably the left, a set of four concentric semicircles was incised by an engraving tool held in the other hand, presumably the right. Each arc was made by appending small straight strokes linearly to one another (Figures 1b, 3a, 3b), while the secondary hand turned the stone and oriented it so that each stroke could be properly incised (*cf.* Marshack 1996d). This sequence was performed four times, during which the engraver had to evaluate the different, coordinated actions of the two hands and the developing, preconceived image. After the arcs were engraved, long strokes were incised both above and around the arcs.

Who, then, incised this image? The capacity for planning and for sustained, complex production, using a visually mediated *two-handed* skill, was of the type that was involved in the making and use of Middle Paleolithic stone tools. These capacities were, therefore, shared by the Neanderthals and anatomically modern humans.

It is perhaps significant that this early image is not of an animal, a human, or the decoration of a tool. It represents, instead, an abstract, schematic depiction of some sort. Whatever its meaning, the composition contradicts the view that imagemaking began in Europe at the Middle Paleolithic/Upper Paleolithic transition. There is no evidence during this period for an advanced bone technology in Israel and there are no bone beads. I nevertheless assume that the makers of this image wore personal decorations, probably of perishable materials such as skins, leather, or twined thongs, that they used red ocher, and perhaps tied their hair and made beads or amulets of perishable animal parts or wood. Wood carving has been documented, for instance, even in the Middle Paleolithic of Spain (Carbonell & Castro-Curel 1992).

Since the Quneitra image was incised shortly before the Middle Paleolithic/Upper Paleolithic transition began in the Middle East, it is probable that it was a part of incipient cultural developments that led to the Upper Paleolithic transition in Israel and that the composition was, therefore, made by anatomically modern humans, some of whose descendants would disperse into Eurasia.

An Acheulian Figurine

A few kilometers from Quneitra on the Golan Heights, at the site of Berekhat Ram, Israeli archeologists excavated a shaped piece of volcanic tuff in a level dated, minimally, at *ca.* 233,000 ± 3,000 BP (Figures 4a, b) (Feraud *et al.* 1983; Goren-Inbar 1986). This places the artifact at the lower end, or just outside the lower range, of the theoretical mtDNA "Out of Africa" scenario for the origins and dispersal of modern humans (but see Ayala, 1995, for a possible increase in the early range of these dates). Because of the early date it had been assumed by commentators who had not studied

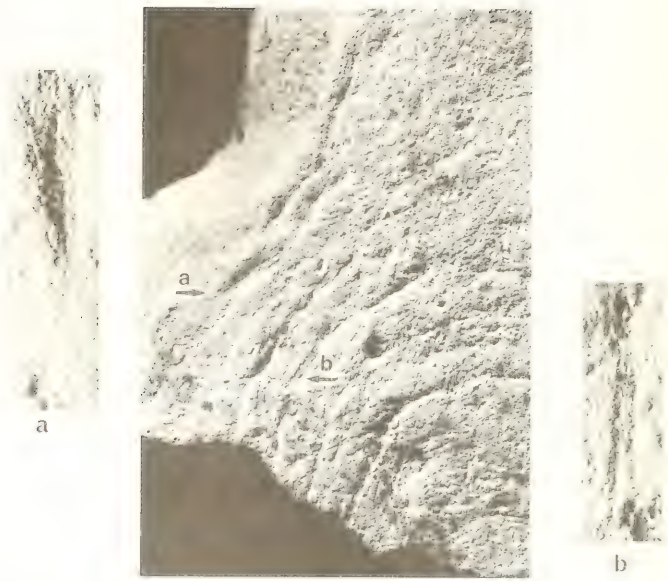

FIGURE 3. A close-up of the marking at the right of the Quneitra cortex, indicating a portion of the concentric arcs and the straight line incising of the short strokes. a) An extreme close-up of the stroke incising a double track at the far right of the stone. The stroke tails out with a single long track, made at an angle; b) The short stroke incising a double track in the outer, fourth semicircle. The top of this stroke over-crosses and extends beyond the upper stroke to which it is appended and at bottom it extends beyond the lower vertical to which it is appended. There is a faint indication of striation within the double tracks of strokes "a" and "b."

the artifact that the shape might be natural, since "scoria" can assume odd shapes and even grooving when volcanic material is hurled through the air as molten lava and impacts the earth (Pelcin 1994). Dr. Sergiu Pelz, a volcanologist and pyroclastic specialist with the Geological Survey of Israel, after studying my microscopic analyses of the figure and then studying the artifact, declared that it is *not* a scoria, but a piece of compacted, agglomerate volcanic tuff, shaped by use of a tool (Marshack 1995b; Goren-Inbar & Peltz 1995). A microscopic analysis of the carving and a discussion of the data's relevance is being prepared for publication. Here it may be sufficient to indicate that the grooves of the neck, *i.e.*, those coming from the front and the back, do not meet but instead cross over each other on the left side, a process that does not occur in the grooving noted for scoria but is common when one is attempting to incise a groove around a three dimensional form. In addition, the grooves of the neck present flat beveled planes that are made at a wide angle, with a deep groove incised between the planes.

FIG. 1–4 Berekhat Ram Acheulian Schematic bottom figure sketch (2) [illegible] (3) [illegible] (4) [illegible] the head and the head of the animal. Note the neck groove [illegible] the shoulder. There is the form of an [illegible] [illegible] [illegible]

My microscopic analysis indicates that a natural form had been altered to enhance the image of a "figurine." Slight modifications of natural forms are, of course, well-known in the Upper Paleolithic. It must be noted that the capacity to envision a potential form in unworked natural material is a crucial perceptual, cognitive aspect of both Acheulian and later lithic technology.

The Levantine Aurignacian

Twenty thousand years after the Quneitra engraving, a complex and varied Aurignacian bone technology, with an associated bone "art," developed in Western Europe. Some two or three thousand years after the more sophisticated Aurignacian bone images (Vogelherd, Hohlenstein-Stadel) had been produced in Europe, hunter-gatherers carrying the Aurignacian culture made a foray into the Middle East (Tixier 1974; Tixier & Inizan 1981; Belfer-Cohen & Bar-Yosef 1981, Bar-Yosef & Belfer-Cohen 1988), reaching as far south as Lebanon and Israel.

Levantine Aurignacian Artifacts

Some of these hunter-gatherers, carrying their European bone and lithic technology, camped at the Israeli cave of Hayonim (Figures 5, 6). They also brought much of their symbolic culture (Figure 7). The Aurignacian animal tooth beads from Hayonim, for instance, are precisely like Aurignacian beads that I studied in Germany and France.

It has often been argued that Aurignacian beads mark a supposed "beginning" for human self-awareness, social complexity, art, the standardization of human production (but see Belfer-Cohen & Goren-Inbar 1994) and even the beginnings of fully modern human language (White 1989 a, b; 1992, 1993). Did these migrating hunter-gatherers, then, bring supposedly "new" human capacities for symboling into the Middle East? Or was it primarily their stone and bone *technology* and the symboling traditions and skills that they had developed in the use of these materials, that they brought into the Middle East? The migrants were composed of small, scattered groups of mobile hunter-gatherers strung along the fertile coastal plain of the eastern Mediterranean. The demographic and networking complexities that were at this time "exploding" within the diversified ecologies and vastness of Europe did not exist in the Middle East. I assume that it was Aurignacian *technology* and the symboling concepts and traditions that had developed in use of that technology that were brought into the Middle East, rather than a "new," anatomically modern, biological, species capacity, or the purported "first" traditions of human art (*cf.* Marshack 1994). After some generations the "Aurignacian" population and culture were apparently absorbed into the indigenous Middle East hunting-gathering cultures and populations, populations and cultures that had their own language, symboling traditions, social complexity and forms of personal decoration.

The "Aurignacians" brought with them their European mode of symbolic engraving, including a tradition of accumulating sets of marks such as those I had termed "notation" in Europe (*cf.* Tixier 1974). A small engraved pebble (See Bar-Yosef this volume, Figure 5, p. 174) was excavated in Aurignacian level D at Hayonim (Figures 8 a-d). It contains a fossil intrusion that runs through the limestone at one side and it may have been chosen for that reason. The initial Israeli publications (Belfer-Cohen & Bar-Yosef 1981:35; Bar-Yosef & Belfer-Cohen 1988) depict a rather crude me-

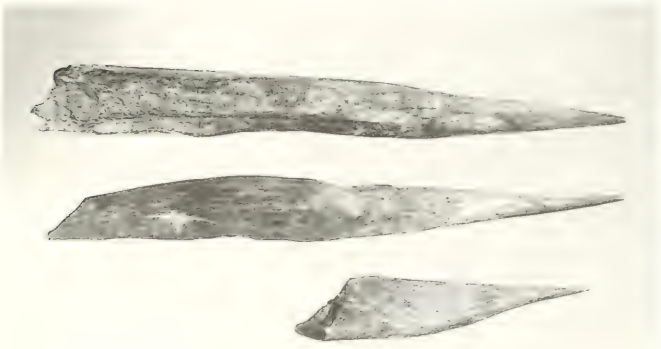

FIGURE 5. Bone points from the Aurignacian of Hayonim D, Israel, of the type found during this period in Europe.

FIGURE 6. Dufour points from the Aurignacian of Hayonim D, Israel comparable to those found in the Aurignacian of Europe.

FIGURE 7. Animal tooth beads from the Aurignacian of Hayonim D, Israel, of the type found during this period in Europe, *ca.* 29-28,000 BC

lange of lines within which one can make out the simple outline of a horse. This horse is the earliest known example of animal engraving in the Levant. The stone is covered with red ocher in its central area and it may therefore have been used as a rubbing stone to make ocher powder.

Complexity of the Horse

The seemingly "random" linear marking found in and around the horse also occurs on symbolic artifacts found in Ice Age Europe. It is a type of marking not only found with animal images but also alone on mobiliary artifacts and it is found often in the Franco-Cantabrian caves (*cf.* Marshack 1977, 1992, 1993). Microscopic study of the pebble reveals that it consists of different types of imagery or "motifs" comparable to the variability found in Europe.

The first image to be incised on the pebble was the outline of a running horse made in what Leroi-Gourhan, in mid-century, had labeled as "Styles I-II" of the French Aurignacian (Leroi-Gourhan 1965). The horse has no hooves, no pelage, no mouth or nostrils and no underbelly; the back is merely an undifferentiated arc; the eye is a simple gash. The image could easily pass as a typical Aurignacian engraving.

It is not the horse, however, that is most interesting. After the horse was engraved it was "killed" by darts, spears or wounds incised in and across the animal in different "styles," with different points and, therefore, presumably at different times (Figure 8b). This variation in the style of depicting schematic weapons is typically European. But the horse was not only symbolically "killed"; it was associated with motifs, also made in different "styles," at different times and with different points (Figure 8c). These motifs include two schematic "streams" or "bands," a hatch design that surrounds and over crosses the fossil intrusion, and arcs that may represent the back of an animal. As noted, the stone had also been overmarked with red ocher, suggesting the presence of symboling traditions of still a different type. The pebble (Figure 8d), therefore, provides us with evidence for various modes of image and symbol use, a

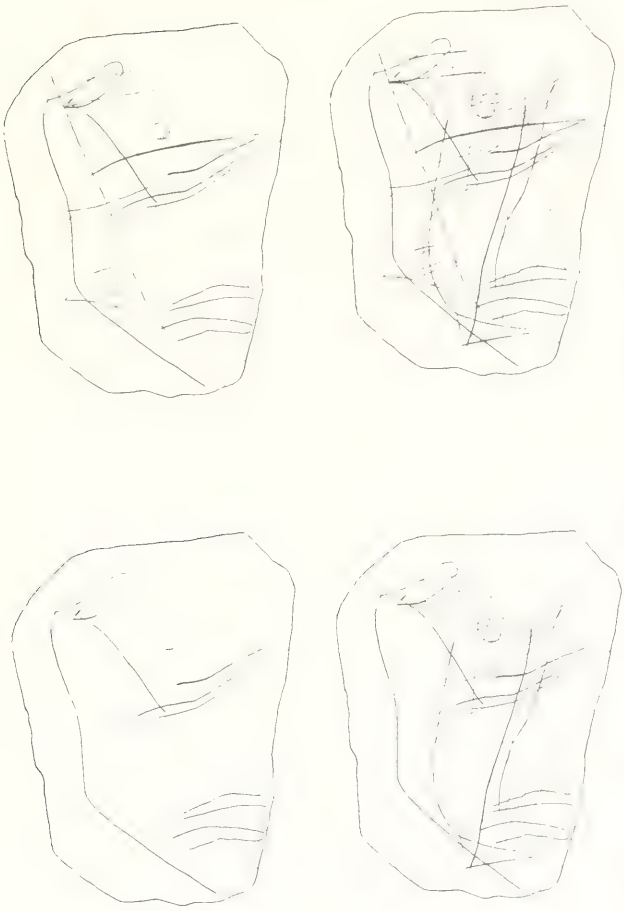

FIGURE 8. Schematic rendition of the sequence of engraving different images and motifs on the pebble from Hayonim: d) Presents the type of overmarking found throughout the European Upper Paleolithic

range and variability that is also found in all periods of the West European Upper Paleolithic, from the Aurignacian to the Magdalenian.

At a simple level we can probably categorize the horse as "art" made in a temporal, regional "style" and indicate that it was associated with diverse motifs, apparently incised over a period of time. But *why* was the horse engraved? As "art"? For public display? As a form of information encoding? As an animal that was hunted and was therefore involved in "hunting magic"? Or was it a symbol and metaphor that could be used in *different* ways at *different* times? But if the horse was a symbol and metaphor, *who* made the engraving? A hunter, or a ritual specialist such as a "shaman" for whom each type or instance of marking had a different meaning? If it was a "shaman," over how long a period was the pebble kept and in what contexts or seasons was it incised and used? For what purposes? Was it engraved when the horse was seasonally present, or was it marked when the horse was *not* present but was expected and had not yet arrived? Or was the horse merely "killed" symbolically for ritual purposes such as an initiation, a birth, a death, or in a prayer or invocation? Does the analytical complexity suggest the presence of a "ritual specialist," the member of an elite class that may have carried aspects of Aurignacian culture into the Levant (*cf.* Bar-Yosef, this volume, p.165)? Whatever the interpretation, it is clear that we are dealing with more than mere "art" or depiction. The association of a horse with different types of symbolic marking seems, in fact, to have been as important as representation of the horse itself.

The French Magdalenian

The "Type" Image

I began to study these variable Upper Paleolithic modes of using animal images nearly thirty years ago (*cf.* Marshack 1969a, 1972, 1991a). One of the earliest of these studies was of the woolly mammoth incised on a piece of ivory that was excavated at La Madeleine, France, in 1864 (*cf.* Lister & Bahn, 1994:96; Marshack 1995:33). This was the image that validated the presence of art in the "Reindeer Age" and it has, as a result, been examined and published many times. My interest had been originally roused by Breuil's rendition (Maska *et al.* 1912:277) which suggested that the mammoth had been "used" and "reused" in different ways by a series of later additions.

The first image to be engraved was a magnificent woolly mammoth (Figure 9a). The outline of the body and head and the hairy coat are realistic, the small eye is beautifully rendered, even the anal flap and upraised tail are depicted. The mammoth is leaning forward with the rear leg thrust back as though in defense or attack. Modern Eurasian elephants, when attacked or attacking, raise their tail in this manner and we may therefore have the image of a mammoth under attack.

The microscope reveals that after the mammoth was engraved it was "killed" with spears or darts made at different times, in different styles and to different lengths (Figure 9b). Some of the weapons or "signs" are typical of the European Upper Paleolithic. But the mammoth had not only been "killed," it had also been "renewed" or "reused" by adding schematic parts of the animal. There are three or four extra backs within the mammoth; an extra tail, also upright, was appended at the rear and a number of extra tusks were added at the front (Figure 9c). The entire composition (Figure 9d) was apparently accumulated over a period of time, in a manner similar to

but more highly evolved than, that found at Hayonim in Israel more than 15,000 years earlier.

How does one interpret such a composition? We can discuss the realistic "style" as a chronological marker for the Magdalenian; or the fact that this level of realism developed only in the West European Upper Paleolithic, but not in Central Europe or on the Russian plain and we can ask why. We can discuss it as an example of the ways in which animal images were used in the Upper Paleolithic; or discuss the fact that when this mammoth was incised the species had begun to diminish in Europe and would soon be extinct. We can discuss the changes in climate occurring during the Magdalenian and the fact that the mammoth was probably incised during a cold period. We can discuss the fact that the mammoth was never a major item of diet in the Magdalenian but that it was nevertheless, like the "killed" Aurignacian lions of Vogelherd and Chauvet, a significant symbolic animal. Or we can discuss the image in terms of "art" and "style"; as a form of "information encoding" or as an indication of group membership and differentiation. Or we can note that in the Middle East there were no mammoths or the European range of midlatitude and subarctic fauna, or migratory herds that roamed great distances (reindeer, bison, *etc.)*. Or we can discuss the extraordinary variability of image use found in Ice Age Europe and compare it to the variability that is beginning to be found in the Middle East (see Bar-Yosef, this volume, p.165)

In the Magdalenian cave of Les Trois Frères, in the French Pyrenees, there are hundreds of engraved animal images, but only one mammoth. When I conducted research in this cave, I was struck by the fact that the images of bison, horse, reindeer, ibex and lion were made and used or reused in many ways; occasionally animals were represented by merely a part of the animal, a head, a tail, a leg, a rump, *etc.*

A beautiful bison at Les Trois Frères, incised in the realistic Magdalenian style, had been repeatedly "killed" by numerous spears or darts (Figure 10). The initial engraving depicted a bison in summer moult, with a bare upper body but a scraped indication of pelage in the lower half, a typical Magdalenian mode of rendering the bison in its summer coat. Added to the upper body are two zigzag motifs made by different engraving points and presumably at different times. The zigzag is a motif that I have argued is the schematic rendering of the summer molt when it is incised within this upper area of the body in certain species. Molting, which occurs among bison in the late spring, begins as jagged zigzag clusters or clumps of hair that fall from the upper half of the body (*cf.* Altuna & Appaleniz 1976:169, Figures 109, 110).

In the original engraving the tail of the bison hung downward. Over this tail a second tail, standing vertically upright, was incised by a different point, as on the La Madeleine mammoth. The "summer" bison had been "killed" – but it had also been reused or renewed by adding different motifs or images, having different meanings. We can therefore discuss this bison at numerous levels; in terms of Magdalenian style, the meaning of the motifs, the varying modes of use, the probable season in which bison appeared in the Pyrennean foothills, the profusion of bison in the cave in comparison to the one mammoth, *etc.* It may, however, be sufficient to indicate that similar modes of animal image use occur in France, Spain, Germany and Italy (*cf.* Marshack 1969).

modes of animal image use are common in the Lascaux Upper Paleolithic. In the final engraved phase of the image, detailed elements are

FIGURE 10. Schematic rendition of the bison indicating the added tail, the added zigzags and the multiple spears or darts.

Anatolia

The Trois Frères and Pyrenean images have been dated to the Middle Magdalenian (Clottes 1988-89, 1990, 1991, 1993), that is, toward the approaching end of the European Ice Age, around 13,500-14,000 BP, when the climate had begun to oscillate. During one warm phase the Middle Magdalenian culture had dispersed out of Western Europe, reaching Czechoslovakia and Poland (Marshack 1994b). Its influence may have extended even to the Russian plain.

During this period the modes of animal image use that we have been describing were present also in the Middle East.

The Cave of Öküzini

A series of incised pebbles were excavated in mid-twentieth century at the cave shelters of Öküzini and Karain in Anatolia, Turkey, situated in the foothills of the Taurus Mountains at the edge of the Mediterranean alluvial plain (Kökten 1958, 1961). The pebbles come from approximately the same period as the Middle Magdalenian images found in Europe, *ca.* 14-13,000 ± BP (Yalinkaya *et al.* 1995), though in the Middle East this period is called the "Epipaleolithic."

They were initially described by the Turkish excavator, Kökten, and then by Anati, but they were rarely, thereafter, discussed or studied. This may have been due to the presumption that a relevant tradition of Paleolithic image and symbol did not exist in the Middle East, in part because Paleolithic excavations in the Middle East have been sparse when compared to their profusion in Europe. I discuss two of the Anatolian pebbles; these and others are also discussed elsewhere (*cf.* Marshack 1995c, e).

One of the pebbles had been illustrated by Anati (Figure 11) (Anati 1968, 1972). My study of the pebble indicates that it has a slightly different shape than was originally depicted (Figure 12), that the aurochs was accurately drawn (Figure 13) and looks, in fact, like bovids incised on pebbles in the Romanellian culture of Italy (Vigliardi 1972, 1976).

A microscopic study indicates that the aurochs was the first image engraved on the pebble; over the bovid a male was incised; he has a bent arm that is thrusting a spear into the animal's chest. The seeming "buttocks" image depicted in Figure 11 was found to be a crack in the pebble. Apparently after the hunter was engraved, a series of spears and darts were incised into and around the animal.

Kökten reported that an incised aurochs had been found on a wall, yet no aurochs bones were found at the site J-M. Léotard, personal communication; Yalçinkaya *et al.* 1995; Otte *et al.* 1995; Marshack 1995c,1995e). The site yielded primarily ibex and wild sheep, though remains of gazelle, deer and hare were also present. The aurochs, therefore, reminds one of animal images found in the Franco-Cantabrian caves; the species that were depicted were not necessarily major items of diet. Yet despite a lack of aurochs bones, the morphology of the animal was known; it was accurately depicted, and it was probably hunted, though perhaps ritually in certain seasons. Whatever its role, the *image* of the aurochs could be "killed" and renewed.

My surprise came in study of the aurochs head. The original muzzle was morphologically accurate, but three or four rapidly made, crude muzzles were then incised over it. A close-up of the muzzle indicates a perfectly formed round eye, to which has been added a later, second, oval eye; from the first eye there flows a stream of "tears" (Figure 14). Images of the tear duct in bovid and cervid eyes occur in Magdalenian en-

FIGURE 11. Okuzini, Anatolia. Epipaleolithic period. The rendition of an incised pebble with a crude bovid. The rendition suggests a female figure in the Magdalenian buttocks style at the right (after Anati 1972).

FIGURE 12. The Öküzini pebble indicating a different shape for the pebble and the bovid than originally rendered

FIGURE 13. Öküzini. Schematic rendition of the engraving indicating the human male thrusting a spear into the chest of the bovid. A series of schematic weapons were incised into and around the bovid

gravings. The Öküzini composition, apparently accumulated over a period, seems to represent an evolved "Upper Paleolithic" style of animal rendition and image use. Given the "complexity" of this engraving, the absence of other examples in Anatolia may be due to the sparcity of excavation. There are indications that the underlying modes and traditions found at Öküzini and Karain survived and developed beyond the Epipaleolithic. In the early Neolithic village of Catal Hüyük, located on the Anatolian plateau, there are panels containing male hunters painted at different times and with different paints; the hunters are ritually "killing" or dancing around a huge bull aurochs in one panel and an antlered stag in another (Mellaart 1967:Figures 61-64.). The isolated, horned aurochs head was a major cult image at Catal Hüyük. If the antlered stag was "killed" in a seasonal ritual "hunt," probably near the rutting season, the aurochs bull may have been ritually hunted or killed in a different season, perhaps in the spring or summer. On the coastal plain of Israel, while the aurochs was present and perhaps hunted in small numbers during the Epipaleolithic, it did not become a symbolic image until the prepottery Neolithic (PPNB) (Bar-Yosef, this volume).

Abstraction and Notation

The most important composition to come from Öküzini occurs on another pebble. It provides a different kind of comparison with symboling modes in Europe. The pebble contains no animal image but is incised with two different types of abstract, schematic imagery (Figure 15 a, b). Like the aurochs pebble, this pebble was never used as a tool. Yet it is heavily hand-worn and polished along all of its edges, suggesting curation and handling over a considerable period of time. On one face (Figure 15a) there are twelve small circles (slightly triangular) engraved inside a large, encompassing, circular, containing line. At its lower end the containing line is extended to meet a "ladder-like" motif at the right which consists of an accumulation of sets and subsets of marks made by different points, to different lengths, in different rhythms, with varying pressures and containing occasional "signs." A profusion of such "ladder-like" motifs is accumulated on the other face (Figure 15b).

This second face contains three blocks of tiny marks arranged in horizontal rows; each block is incised on a slightly different plane of the stone's surface and at 90° to its neighbor. Analysis of the "ladder-like" accumulations on this face indicates that they, too, are composed of sets and subsets incised by different points, pressures and rhythms and they are also interspersed with "signs" and cueing marks (Marshack 1995c). The compositions on the two faces of the pebble were apparently accumulated over a considerable period of time, a length of time perhaps indicated by the hand polish along the edges of the pebble.

On the first face, within the area containing the twelve circles, other small circles were later incised, one at a time (Figure 15a). This accumulation of circles and of sets and subsets on a single artifact represents a mode of symboling different from that found on the bovid pebble. Yet both pebbles come from the same level, Level IV at Öküzini, dated at *ca.* 13,000-12,000 ± BP, the period of the Middle Magdalenian in Western Europe and the early Romanellian in Italy, cultures within which variants of comparable traditions are found (Vigliardi 1972, 1976). These two pebbles document a few of the highly evolved, complex symboling' traditions found in the Epipaleolithic of the Middle East. Recent excavations at Öküzini and Karain have begun to enlarge both the symbolic corpus and its variability.

A microscopic analyses of the sets and subsets on the Öküzini pebble has been published (Marshack 1995c). That analysis documents the presence on the pebble of

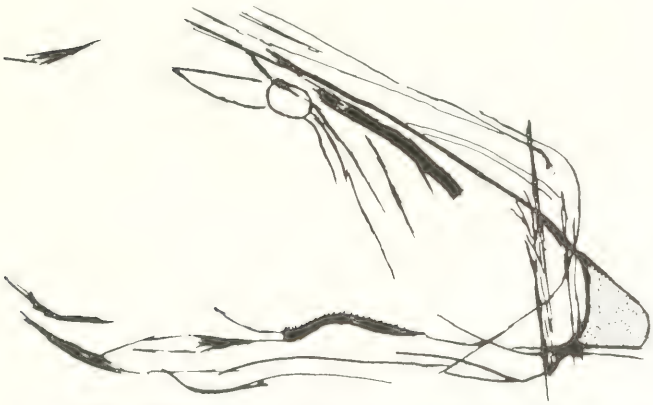

FIGURE 14. Schematic rendition of the bovid head indicating a second eye, tears flowing from the tear duct in the original eye, and an overmarking of the original finely incised muzzle with a series of crude later muzzles

a cumulative, nonarithmetical "notation" comparable to nonarithmetical "notations" found during this period in the late Upper Paleolithic of Europe (Marshack 1991c; D'Errico & Cacho 1994). Analysis of the first block (Block A) on the second face, for instance, documents an accumulation of sets and subsets, incised at different angles, with different tools and pressures, interspersed with "cueing marks" and "signs" (Figures 16a, b). Some of this engraving on limestone would have been as visible as ink on paper.

Nondepictive Symboling in Israel

Comparable accumulations of sets and subsets occur in the Epipaleolithic of Israel. They are found on bone in the early Kebaran at Ohalo II (Rabinovich & Nadel 1994-5), dated to *ca.* 19,000 BP; on limestone in the late Geometric Kebaran at Urkan E- Rub II, dated to *ca.* 15,000 BP (Hovers 1990); and on plaquettes and blocks of limestone in the Natufian at Hayonim (Belfer-Cohen 1991) at *ca.* 13,000 to 10,700 BP. They document a tradition that was maintained and developed in this area for almost 10,000 years through major changes in climate and hunting-gathering adaptations (Bar-Yosef & Valla 1990; Bar-Yosef & Belfer-Cohen 1991, 1992; Lieberman 1993). It was at the end of this period, during the cold, dry spell of the Younger Dryas (Dryas III, *ca.*11-10,000 BP), that farming began (Aurenche & Cauvin 1989; Moore 1989; Bar-Yosef & Belfer-Cohen 1989, 1991; Gebauer & Price 1992). It is my suggestion that a developing tradition of "time-factored" notation may have played a preparatory role in the shift to farming.

An early Natufian (*ca.* 12,300 ± BP, uncalibrated) fragment of incised limestone (8.8 cm), was excavated in the 1980's by F. Valla on the Hayonim terrace (Figure 17a). The central engraving consists of two parallel "ladder-like" containing lines

within which an accumulation of sets and subsets of marks were incised by different points, at different angles, and with different pressures. It contains 34 unit marks; 30 marks within the central accumulation, divided into subsets, with four tiny marks added at the end, at far left. Subsidiary sets, engraved at different angles, to different lengths, and by different points and pressures, were engraved around the central marking. There are 46 units in this later marking, divided into eight sets of from three to seven strokes (Figure 17b). A tradition of adding subsidiary sets to an initial, pri-

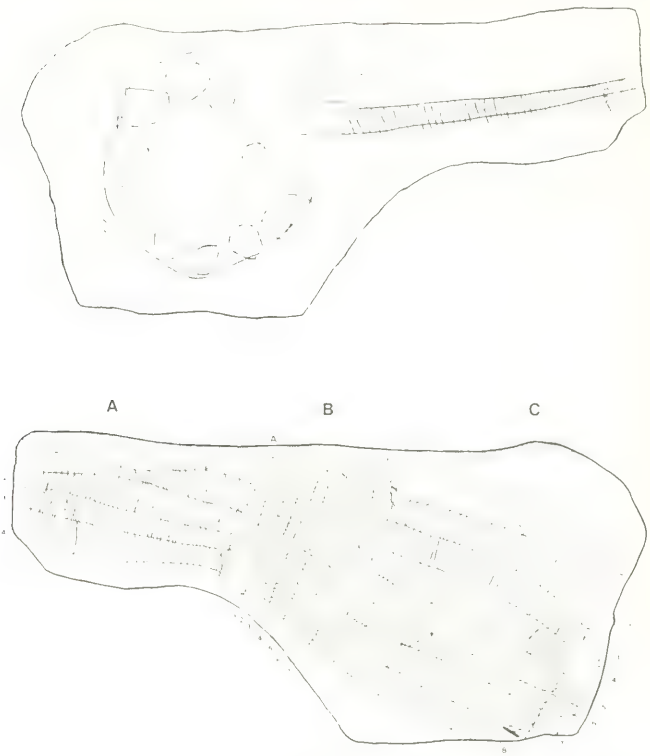

FIGURE 15. Okuzini. Two faces of an incised limestone pebble (12.22 cm): a) Face one has a large containing circle incised with twelve smaller circles within. A number of later small circles were ritually added within the area at left. The large circle is attached to a row of marks that consists of sets and subsets accumulated in the manner of the rows on Face 2, with internal "cueing signs" and other differentiations among the marks and sets; b) Face two has three blocks (A-B-C) of horizontal rows that contain a complex accumulation of sets and subsets of marks. Each block (A-B-C) ends with a "cueing sign of closure" and each row contains a variable range of cueing signs and differentiations among the sets.

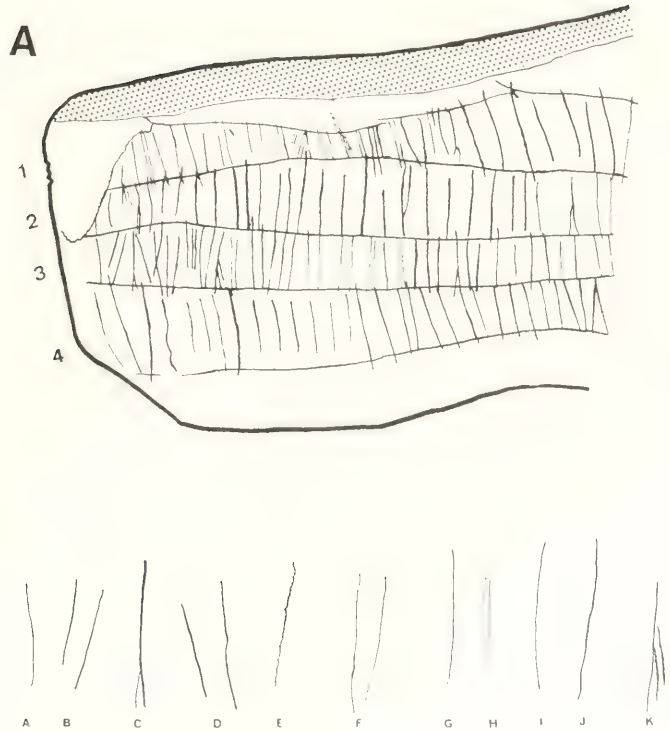

FIGURE 16. Oküzini, Anatolia. Epipaleolithic, *ca.* 14-13,000 BP; a) Linear rendition of all the incised marks within four rows of block A on the pebble, indicating the subsets made by different points, with different pressures, to different lengths, at different angles, as well as the "cueing" marks or "signs" on particular unit strokes. Block A is terminated with an inverted "Y" sign. Blocks B and C have different signs of closure; b) An exploded rendition of the first 18 marks of row 3 in Block A, indicating the differences in incising "Cueing" marks are appended to strokes C and K. The subsets are made in different directions and with different tools and pressures. Some strokes are arced to the right, others to the left. This type of variability exists among all the subsets and rows of Block A, B and C.

mary accumulation is quite common in the early notations (*cf.* Marshack 1985b; 1991a, b).

The Hayonim composition is neither "art" nor "decoration" but a mode of intentional, cumulative marking. The stone was not a practical tool, but was used only for this engraving. As on the Öküzini pebble, much of the engraving is today too faint to be seen by the naked eye. For many reasons, then, the engraving would not have been intended for public "display." It seems to have been a record kept by one person. A

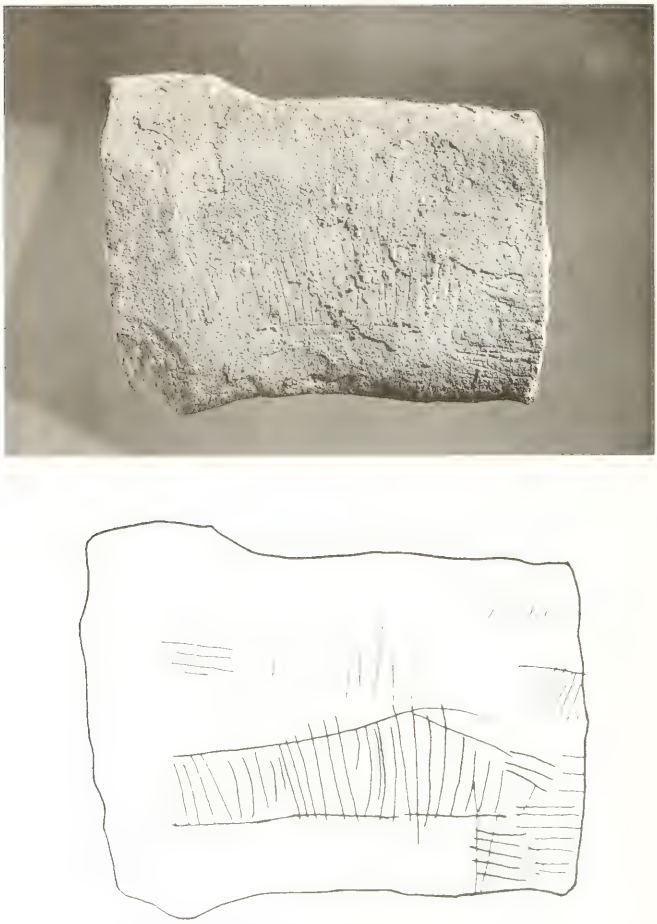

FIGURE 17. a) Small limestone pebble from the Hayonim Terrace Early Natufian. It is incised with a "central "ladder-like" motif with later subsidiary sets added around the central accumulation; b) Schematic line rendition of the sets of marks incised on a fragment of stone from the Natufian site of Hayonim. The initial "ladder-like" accumulation of marks is incised by different tools, at different angles, and with different pressures. The accumulation of subsidiary of marks were made by different tools. Unpublished artifact, excavated by F. Valla

study of the engraving indicates that the central motif and, apparently, the subsidiary sets began at the right and were accumulated towards the left; the accumulation could probably, therefore, be "read" by the maker as a "continuous" sequence.

Natufian "Art"

This pebble had been incised in the Middle East during the period of high artistic, symboling creativity in the Late Magdalenian of France, *i.e.*, about 13 to 12,000 BP. It is thus a thousand or so years earlier than the far more complex Grotte du Taï notation excavated in France (Marshack 1991b). To indicate that this engraving represents a specialized mode of symboling, rather than a lack of artistic skill, I present some of the true "art" that was being produced in this period by the Natufians. The stone carving of a small human head from El Wad in Israel has over large eyes and a nose, mouth and ears (Figure 18). A more abstracted, schematic human head in stone, perhaps a"spirit" head in which over large eyes are again the dominant feature, comes from the site of Eynan (Mallaha), in Israel (Figure 19). An ungulate, perhaps a gazelle, is carved on a bone sickle handle from El Wad (Figure 20a); it is as carefully carved as ibex kids made during this same period on spear-throwers made of reindeer antler from the French Magdalenian sites of Bedeilhac and Mas d'Azil (Figure 20b). In each case an animal decorates a working "bone" tool: in Europe hunting tools, in Israel cereal harvesting sickles. There are also phallic images and female images in the Natufian, comparable to those found in the Magdalenian of France. A phallic image is incised upon a piece of natural flint at El Wad (Figures 21 a, b) (Weinstein-Evron & Belfer-Cohen 1993); a more realistic, unpublished phallic image, carved of limestone, comes from the site of Fazael; it has no date but it is clearly made in this regional tradition (Figure 22). Comparable phallic images were carved of reindeer antler during this period in the Magdalenian of France and Spain (Figure 23) (Marshack 1972:330;1991:330) A piece of natural flint from El Wad has the form of female images made in the so-called "buttocks" style found during the Magdalenian of Western Europe (Figure 24) (Weinstein-Evron & Belfer-Cohen 1993). A female identity is suggested by the hip belt incised around the waist. Such hip belts are depicted on female images throughout much of Ice Age Europe (Marshack 1991c). The hip belt would be retained as a primary attribute of female images in the Neolithic of both Europe and the Middle East.

What is significant is that so many types of image and symboling were shared in this core area during the same period, despite regional differences in "style" and probable variations in the use and "meaning" of the imagery. Of particular interest is the fact that the variability of the mid-latitude European Pleistocene fauna and ecology had provided much of Upper Paleolithic iconographic reference; in the Middle East, despite symboling traditions of underlying similarity and great complexity, the referential variability was somewhat different. In the Middle East, for instance, in addition to a less variable fauna, there was often a tendency to a different order or type of abstraction.

The Hayonim Block

In 1994 a large rectangular limestone block (*ca.* 58 cm long), some 35 to 40 pounds in weight, was excavated by Bar-Yosef from Locus 8, an early Natufian level (Level B), in the cave of Hayonim (Figure 25). It has not yet been published and comes from approximately the same period as the pebble found on the Terrace, *ca.*

FIGURE 18. El Wad Natufian. Carved head in stone

12-13,000 BP. The stone is too heavy to have been a mobiliary artifact and so was a relatively stationary object in the cave. One flat plane of the block is incised with a very faint, long "ladder-like" motif consisting of sets and subsets of marks made by different points, in different rhythms, and with strokes of varying length (Figure 26). The sets are interspersed with "cueing marks" and "signs," recalling a type of marking variability found on the pebble from Öküzini. The scale of marking is, as on the Öküzini pebble, roughly that of a yardstick or meter rule.

Again, the incising is so light that it could not be easily seen at midday in the ambient light within Hayonim cave. It is today mainly visible in strong side light. When originally incised, however, the engraving would have been visible as stark white, powdery lines that would have persisted for months. Because of the difficulty in pho-

FIGURE 19. Eynan (Mallaha). Natufian. Schematic head carved of stone

tographing this faint marking, Figure 29a presents a schematic overlay of the accumulation in black ink, as determined by microscopic study. Given the scale, delicacy, and structure of the engraving, it is unlikely that this accumulation was intended as "art," "decoration," or for public viewing. Belfer-Cohen (1991) has reported other "ladder-like" markings Hayonim cave. Many of these have not yet been published.

Microscopic analysis indicates that the engraving consists of an accumulation of sets and subsets of from one to seven or eight unit marks in length, similar to the sets and subsets found on the Hayonim terrace pebble and the pebble from Öküzini in Anatolia. These sets were made by different points, pressures, rhythms and, in this instance, with strokes of dramatically varying length. The variability and complexity of the engraving suggests that it could not have been incised rhythmically, that is, "at one sitting."

The profusion of accumulated "cueing marks" and "signs" strengthened the probability that this was a form of record-keeping maintained inside the cave. For reasons

FIGURE 20a. El Wad. Natufian Carved gazelle on bone sickle handle

of scale, and because of the linear structure, the accumulation could not have been "read" arithmetically; but it could probably have been "read" as a *developing* sequence, aided by the *position* of cueing marks and signs within the developing sequence. I assume, therefore, that the cueing signs and subsets served as abstractions

FIGURE 20b. Bedeilhac, France. Middle Magdalenian. An ibex kid with inset eye carved as the head of a reindeer antler spear-thrower.

and references to a visually differentiated sequence of real world, phenomenological observations. During my study of the marking, I came to sense a possible division or "chunking" of the accumulation into perceptual "thirds" – one third at the right, one in the middle, and one at left. This approximate division is presented to indicate the perceptual difference within each (Figures 27a-d). Each presumed "third" notates a "two month" period and the three groups notate a six month period (60+60+60 =180). A seventh, extremely faint group of 30+ marks was appended at far left, apparently as a subsidiary, terminal accumulation (Figure 27d).

What sort of questions can we ask of this composition? Levantine archaeology documents an increasingly sedentary occupation of major sites or "base-camps" by hunting-gathering groups of the Natufian, accompanied by an increasing collection and storage of wild cereals (Henry 1981; Bar-Yosef & Belfer-Cohen 1992). This tendency toward sedentism had begun by the early Kebaran *ca.* 19,000 BP, when there is evidence for periods of relatively long-term habitation at certain sites and a collection of wild cereals (Kislev *et al.* 1992; Nadel & Hershkovitz 1991;Nadel 1991; Nadel *et al.* 1994). Gathering and sedentism increased during the Natufian, and these are generally recognized as part of the process that led to the beginning of farming, a shift that occurred when the climate abruptly changed at the last cold snap of the Pleistocene (Dryas III) about 11 to 10,000 years ago. That change in climate initiated drier conditions, and it apparently placed subsistence pressure on the Natufians, pressures that induced changes in the planning and scheduling of seasonal activities and the more intense gathering and storage of cereals.

FIGURE 21. a) A piece of natural flint in the shape if a phallus, from the Natufian of El Wad. It has been incised with an encircling groove to indicate the "foreskin" and a slit at the top; b) close-up of the head of the flint "phallus" indicating the incised slit

FIGURE 22. Carved limestone phallus from the site of Fazael in Israel, perhaps post-Natufian, indicating both the "foreskin" groove and the slit. The tradition is similar to that found in the Natufian

FIGURE 23. Montastruc. France. Middle Magdalenian. Carved phallus of reindeer antler from approximately the same period as the El Wad phallus

Time and Seasonality in the Natufian

In the Natufian, sickles, mortars and pestles were being manufactured for use with wild cereals and plants. Baskets were being woven (at the proper time) for the gathering, portage, and storage of an estimated, required quantity of wild cereals and plants to accommodate the needs of increasing sedentism and an increasing population. A

FIGURE 24. El Wad. Natufian. Small flint nodule in the shape of a schematic buttocks figure with an incised "belt."

dry cave such as Hayonim was an excellent location for cereal storage, and there is evidence for such storage in the presence of domesticated commensals such as mice. At other Natufian sites elaborate stone structures and storage pits were built. There is also evidence for skin working, hide polishing, and the manufacture of symbolic artifacts of stone and bone. The materials to make beads and amulets were often acquired in long distance trade, and this suggests that there were also proper seasons or times for aggregation and exchange. Each of these periodic activities suggests a significant degree of on-site planning and scheduling.

It is probable that these schedules involved increasingly differentiated, specialized roles and activities for women and men at each point in the seasonal sequence. Activities scheduled at a cave such as Hayonim may have included rituals (perhaps a ritual request for, or thanks for, the winter rains; perhaps rituals at times of group aggregation following the gathering and storage of cereals, and so forth). With or without notation, there would have developed an increasingly pragmatic, diversely specialized time-and-space "calendar." The presence of notation, however, suggests

PLATE 25. Large limestone block (35 cm from a Natural scale) bearing over forty engraved lines, including deep "ladder-like" sequences of cuts and subsidiary notch marks, interspersed with deep, mark-related pits. The engravings on this block have been superimposed on the shape to indicate the incised lines and their relationship

a more formal structuring of the cultural tapestry and the probable presence of a "time-factoring" specialist – a leader, shaman, elder, or head of a kinship group.

The incised limestone block at Hayonim may have been maintained by such a specialist, someone who kept track of the economic and ritual sequence. Among the probable observations that would have been made and have been incorporated within the notation were those recording the variability of the winter rains, a variability that would have been keenly monitored with increasing sedentism and an increase in the gathering of wild plants and cereals. The variability in the arrival and intensity of the winter rains, particularly during periods of climatic and weather oscillation, would also have encouraged the development of alternative subsistence strategies and schedules. The same variability would probably have invited ritual interventions, whether to encourage rain and plant growth or to address failures and successes in the year round.

The limestone block at Hayonim may, therefore, document the "sedentary" presence at the cave of a specialist who marked the stone for seven months in a particular year. "Sedentary," that is, within the probable compass of a few days walk from the cave, perhaps for gathering or hunting, or for visits to neighboring groups or the coast. The presence of small subsets in the composition, apparently incised at different times, may record such periods. There would at such times be an engraving of the number of days that the engraver was absent (*cf.* Marshack 1974). Other subsets might record periods of specialized on-site activity. Though the notation does not indicate lunar periods, an indication of the months or "moons" would probably also have underlain the accumulation. The increase in sedentism, the need for specialized scheduling, and the presence of notation may, therefore, allow us to assume that cultural and phenomenological "time" was being monitored and read at a number of levels and in different ways.

Observations of seasonal changes in the natural realm, accompanied by adaptive changes in subsistence behavior, are profusely documented in the Upper Paleolithic/ Meso-

FIGURE 26. The marking on the limestone block as determined by microscopic study

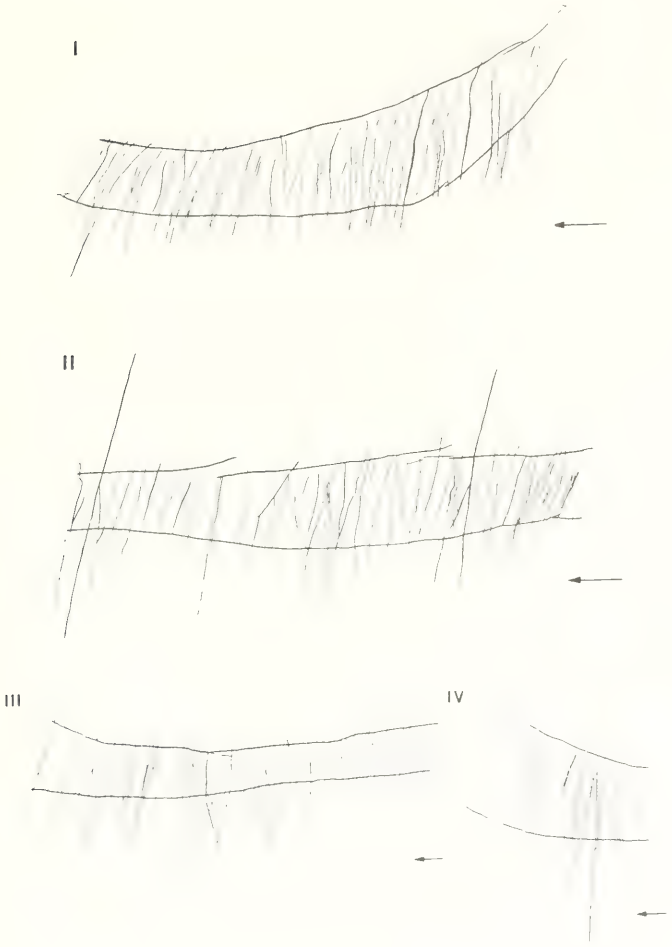

FIGURE 27a-d. Schematic rendition of all the incised marks on the large Hayonim block, divided into four sections on the basis of the apparent perceptual difference in their marking. The drawings indicate the ir - regular breakdown of the marking into sets and subsets of long and short lines with occassional "cueing" marks.

lithic of both Europe and the Middle East (Soffer 1985; Price 1978; Price & Brown 1985; Pike-Tay & Bricker 1993; Pike-Tay 1993; Pike-Tay & White 1989; Lieberman 1993). The relevance of such "time-factored" observations and changes in behavior for our understanding of the referential aspects found in Upper Paleolithic/Mesolithic image and symbol has been argued by this researcher (Marshack 1972, 1975, 1995d). The presence of notation suggests, however, that there were probably structural and conceptual differences in cultural developments that occurred during this period within this core area of Europe and the Middle East from those occurring elsewhere, or that were later present among certain groups of remnant hunter-gatherers that survived into the ethnographic present at the Earth's peripheries (Lee & deVore 1968; but see Smith 1991).

"Reading" the Hayonim Notations

How, then, lacking the cultural referents, do we today "read" or interpret the early Middle East notations? We can, today, analytically study the mode of accumulation, but a Natufian "reading" of the Hayonim block would probably have involved knowledge of the "time-factored" cultural sequence in the economic-social and the phenomenological-natural realms. The notation would presumably have recorded relevant "blocks" or periods of time, as well as happenstance events and aberrant seasonal variations. On the other hand, the small pebble found on the Hayonim terrace may have recorded a smaller relevant period, perhaps a journey from the cave, or expectation of a particular event (*cf.* Marshack 1991b).

Conclusion

The first two great "revolutions" in complex modern human culture were a) the widespread explosion of image and symbol in the Upper Paleolithic of Europe and b) the beginnings of agriculture in a small area of the Middle East immediately after the Pleistocene. I suggest that both revolutions may have been conceptually related and that they were probably developmentally and referentially different from processes that occurred among the hunter-gatherer cultures that persisted into the historic present. These suggestions may help explain why the European Upper Paleolithic symbolic cultures ended when the Pleistocene "calendar frame" and its accompanying conceptual tapestry disintegrated, and help explain the seemingly "sudden" appearance and spread of agriculture in the Middle East on the basis of an equally long, but contextually different, "time-factored" and "time-factoring" cultural preparation. These conjoint developments may help explain both the rapid spread of farming in the Middle East and the relatively rapid adoption of farming among the indigenous hunter-gatherers of Europe who retained aspects of their own, indigenous "time-factoring" cultural preparation.

The beginnings of human image making, and the development and "explosion" of complex symboling traditions in the core area of Europe and the Middle East, present us with processes of extraordinary analytical and theoretical complexity. A proper study, it is argued, will have to go beyond mere ethnographic and archeological comparison, descriptions of imagery as "art," a comparison of "styles," discussions of Upper Paleolithic imagery as "symbol" or "metaphor," and a "gendering" of the corpus. It will have to be based on methodological, systematic, direct analyses of the diverse symbolic materials and traditions and their development. It would involve, as

well, an interdisciplinary attempt to determine the nature and range of the "potentially variable" hominid-to-human problem-solving and symboling capacity, and the range and variability of that capacity as evident in its early uses.

Acknowledgments

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Substantial Acts: From Materials to Meaning in Upper Paleolithic Representation

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"What does it mean"? This is at one and the same time the most frequently asked and the most naively conceived question asked of Upper Paleolithic representations. No art historian trained in the past two decades would ask this question of a Van Gogh or a Picasso. Why then have generations of prehistorians treated entire corpora of Paleolithic representations as if a single meaning and motivation lay behind them? Examples are numerous: Female sculptures as fertility figures; painted and engraved animals as instruments of hunting magic; geometric signs as markers of ethnic identity and/or as the painted equivalents of gendered articles of speech.

The worst and most pervasive misconception is not even formulated as a question but as an assumption embedded in the very term "Paleolithic art." Conkey and I have loudly and frequently decried the use of the concept "art," because of its status as an historical artifact of the later stages of the so-called Western tradition. Indeed, 20th century usage of the term "art" bears almost no relation to the Latin concept of "*ars*," which integrated the domains that we distinguish as "art" and "savoir-faire."

Any thorough treatment of the anthropological literature on cultural esthetics makes clear the wide diversity of cosmologies, philosophies and social contexts that underpin what we generalize as "art." I prefer the term "representation," which has a wide and theoretically complex usage in anthropology. Thus representations can take many forms, can have widely differing underlying logics, can be diversely motivated; and, importantly, many representational media do not even operate in the visual/formal channel.

This understood and accepted, we can forsake a focus on the origins of "art" or "the arts," which have enormous, but highly ethnocentric, cultural value. Rather we can redefine what occurs at the beginning of the Upper Paleolithic as the invention of material forms of representation (White 1992). Such an approach has the additional advantage of allowing us to expand outward from graphic imagery to include, for ex-

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ample, the representational domain of personal adornment, a critical area of study in anthropological analyses of meaning, value and social identity.

It is my position here that by asking, "What does it mean?" or even the somewhat less anthropologically objectionable, "What purpose does it serve,?" and by conceiving Upper Paleolithic representations as "art" in our sense, we have prevented a serious treatment of meaning(s). How then do we reconceptualize our subject matter, our notion of meaning and, more importantly, how do we operationalize these new conceptions in real archaeological research? My answer to this latter question is to focus, literally, on how meaningful representations are/were constructed, what I have described in the title of this paper as "substantial acts."

Technological Orientation

The term "technology" has had a very limited and theoretically uninteresting connotation in American anthropology for decades (*cf.* Dobres & Hoffman 1994). Materialist frameworks such as those of White (1959) and Steward (1955) left relatively little room for considering tools and techniques as anything more than culturally prescribed means of production. Materialist theory in American anthropology immediately before and after World War II seems to have operated in ignorance of seminal theoretical developments in what became European structuralism (Mauss 1936; Leroi-Gourhan 1943, 1945). My own orientation with respect to technology is descended from that of the late André Leroi-Gourhan, who himself was clearly inspired by Marcel Mauss's *Techniques du Corps*, and whose major theoretical and methodological works on technology have only begun to be translated into English (Leroi-Gourhan 1993). Critical to Leroi-Gourhan's research design was the notion of the *châines opératoire*, which he saw as a conventionalized, learned sequence of technical operations implicated in all cultural production from the manufacture of stone tools to the painting of underground cavities to the modern assembly line. These chains were constituents of culture rather than byproducts.

At the level of individual material production episodes, these *châines opératoires* are constituted of sequences of applied techniques, which Leroi-Gourhan viewed as the manipulation of conventional tools by means of habitual, learned gestures. Viewed more broadly, *châines opératoires* can be seen as organized into more encompassing technical systems, driven by a limited number of technical principles. Leroi-Gourhan clearly recognized that these underlying technical systems were/are never the only ones possible and argued that they emerged from profound cultural contexts and historical/evolutionary trajectories.

For him, regional variation in underlying technical systems manifested itself in what archaeologists recognize as style, which he saw as a new and revolutionary kind of material behavior that replaced the need for regional biological diversification in humans. A new generation of scholars of technology and material culture (Lechtman 1971; Lemonnier 1983; Schlanger 1994) have built on the foundation constructed by Leroi-Gourhan (*cf.* Dobres & Hoffman 1994).

My goal here is to illustrate how detailed observation and experimentation aimed at understanding the *châine opératoire* underlying the construction of material representations can lead to new insights into the social, economic and ideational contexts of the representations themselves.

Case Study I: Aurignacian I Personal Ornaments

The Sample

European sites attributed to Aurignacian I (roughly 35-30,000 BP) have yielded an abundance of personal ornaments in the form of beads, pendants, pierced animal teeth and pierced marine shells (White 1989; Taborin 1993; Hahn 1972, 1986). Elsewhere, I have explored in detail raw material choice and fabrication techniques and the ways in which these varied across the European landscape at the very beginning of the Upper Paleolithic. It has been and it remains my position that this large corpus of personal ornaments, following a near absence in the preceding Mousterian (White 1995a), is reflective of significant transformations in human society with the onset of the Aurignacian sometime prior to 35,000 years ago. In light of what we know generally about the social context of modern human bodily adornment, it seems reasonable to hypothesize that the first appearance in the archaeological record of large and varied assemblages of personal ornaments implies the material construction and representation of a diversity of individual and social identities.

A Schematic *Châine Opératoire* for Aurignacian I Personal Ornaments

A schematic outline of the constituents of a *châine opératoire* for Aurignacian (or any other) system of personal ornamentation might look something like the following:

1) Cultural assumptions about personhood.
2) Beliefs about the relationship between materials, representational acts, representational constructs and social/supernatural efficacy.
3) Choice and acquisition (by direct extraction or by social mechanisms of exchange) of raw material based on above.
4) Choice of forms, textures, colors or subject matters.
5) Organization of production, (social, temporal and spatial).
6) Combination of gestures and tools into techniques for ornament production that are coherent with the encompassing, regional technical systems and that enable
7) Representation of desired signifiers of social identity, age, reproductive status,supernatural associations, *etc.*
8) Use of the ornamental representations in (socially, esthetically and cosmologically) meaningful acts.
9) Purposeful (based on intentions for future retrieval/use or ideas about their residual power and efficacy) or accidental (as a byproduct of human activity) disposal of the ornaments.

It is important to emphasize that, procedurally, archaeologists tend to work in reverse through these chains; beginning with basic pattern recognition concerning the distribution of objects in the ground and moving backward through multifaceted, higher order analyses and inferences.

Formal Attributes of Beads

By far the majority of preserved personal ornaments in European Aurignacian-age sites (White 1995b) were fabricated of ivory. Indeed, many of the famous Vogelherd statuettes were pierced for suspension. In the Western European Aurignacian,

facsimiles of red deer canines and marine shells (Figure 1) were executed in ivory (examples are also known in talc and limestone). In addition, there is a variety of more-or-less idiosyncratic "pendants" manufactured of ivory and, less often, of bone, antler or talc. For reasons of space, I shall focus here on operational sequences for the mass production of ivory "beads," giving less detailed treatment to rarer ivory ornaments.

Two formal attributes of Aurignacian I beads and pendants are particularly noteworthy: surface luster and facsimile. First, texturally, almost all Aurignacian I beads and pendants exhibit remarkable surface luster that is not a product of postdepositional processes. The luster on ivory beads (Figure 2) was intentionally produced by techniques (discussed later in this paper) of grinding and polishing, especially the use of an effective metallic abrasive, powdered ocher (hematite).

The potential of ivory to take on lustrous polishes can be seen as having been exploited through the creation and application of appropriate techniques for *replicating* the naturally occurring tactile characteristics of other ornamental media, such as mother of pearl, talc/steatite and dental enamel. In other words, the polishing of ivory was itself a *representation* of textures experienced elsewhere in the natural world. Our own predominant cultural medium of representation is visual; as a result we have tended to treat tactile characteristics of objects as nonrepresentational or minimally representational. However, a moment of reflection will reveal that, even in the so-called "Western Tradition," polished ivory's tactile qualities have been so sought-after that elephants have been brought to the verge of extinction.

The hypothesis that the polishing of ivory was an attempt to *represent* the surface qualities of other substances of tactile interest is supported by the existence in Aurignacian I sites of ivory facsimiles of seashells (mother-of-pearl), and animal teeth (dental enamel and naturally lustrous dentine). Indeed, the basket-shaped ivory and

FIGURE 1. Three of six facsimiles of seashells sculpted in ivory from the Aurignacian I site of La Souquette, France.

talc beads so frequent in SW French Aurignacian I sites (see below) show a striking resemblance in form and size (size standardization is discussed below and has been quantified in White 1989) to a species of Mediterranean seashell found in some Aurignacian I sites in SE France: *Cyclope neritea* (Figure 3). In light of this hypothesized tactile constituent of Aurignacian I representation, it is perhaps not surprising to observe that more than 95% of Aurignacian I personal ornaments are constructed of ivory, talc, shell or animal tooth.

FIGURE 2. Ivory basket-shaped bead from Abri Blanchard, France, showing characteristic luster. Scale in mm

Regional Perspectives

The fabrication sequence (a mere fragment of the much broader and inclusive *chäine opératoire* outlined above) for Aurignacian ivory and stone beads varies both intra- and interregionally. In France, the most common form, represented by more than 1000 specimens, is what has been called basket-shaped beads. Found in large quantities early in this century at Abri Blanchard, Abri Castanet, Abri de la Souquette, Isturitz and Saint Jean de Verges, these have now been radiocarbon dated by Delporte at Brassempouy (Delporte & Buisson 1990) to between 33- and 32,000 years BP. They were created (Figure 4) from pencil-like rods of ivory or talc that were then circuminscribed and snapped into cylindrical blanks one to two centimeters long. These were then bilaterally thinned at one end to form a sort of stem. A perforation was then created at the junction of the stem and the unaltered end. This was done by gouging from each side, rather than by rotational drilling. These rough-outs were then ground and polished into their final basket-shaped form using, first coarse abrasives and then fine metallic abrasives (powdered hematite) as abrasive. My experiments indicate that a mean of one to two hours of labor per ivory bead and 30 minutes per talc bead are required by this process.

Ivory beads in south German Aurignacian sites, also radiocarbon dated to between 32- and 33,000 years BP, are substantially different, although the basic principle of reducing an ivory baton was the same (Figure 5). In the case of Geißenklösterle for example (Hahn 1986), a baton elliptical in section was circumincised and snapped. The blank was then thinned and perforated by gouging. In this case, however, two holes separated by a bulge were dug into the blank. This type of bead is as unknown in France as the basket-shaped form is in Germany.

Raw Material Choice and Acquisition

The full range of ornamental raw materials preserved in the record includes various mineral and animal substances including limestone, schist, talc-schist, talc, mammalian teeth, bone, antler and ivory, fossil and contemporary species of marine and freshwater shells, fossil coral, fossil belemnite, jet, lignite, hematite, and pyrite. However, this relatively extensive list should not be taken to suggest a kind of random use of materials encountered in the environment. A number of pronounced choices were made.

If one examines the species of animals whose teeth were chosen for Aurignacian objects of suspension, there are clear choices that vary somewhat regionally. In France, Belgium, Germany and Russia fox canine teeth predominate followed in much smaller quantities by the vestigial canines of cervids, almost always red deer. In Spain and Italy, almost all pierced teeth are vestigial canines of red deer, with fox canines being absent. At Mladec in Czechoslovakia, beaver incisors dominate, closely followed by moose and bovid incisors. In nearly all instances the species sample for objects of suspension is fundamentally different from that found in the food debris, suggesting choices based on ideas exclusive of dietary preferences.

Pierced marine, freshwater and fossil shells (Taborin 1993) constitute perhaps a third of the objects of suspension found in French Aurignacian sites. Outside of France, with the possible exception of Northern Italy (Bartolomei *et al.* 1992), they are so rare as to be considered virtually absent in Aurignacian-age sites in Spain, Belgium, Germany, Czechoslovakia, Hungary and Russia. Local marine fossils (belem-

FIGURE 3. A specimen of *Cyclope neritea*, closely resembling many of the Aurignacian I basket-shaped beads. Length 6.5 mm. (Courtesy of Y. Taborin.)

nite, coral) served as raw materials for objects of suspension in some Aurignacian-age sites in Russia (White 1993).

Occasional pierced objects in limestone are found throughout Europe. On the other hand, rarer soft stones, such as talc, lignite and hematite were turned into Aurignacian-age items of suspension most often in southern France, but also occasionally in Spain, Italy, and Germany.

Personal ornaments are frequently manufactured of materials exotic to the re-gions in which they are found. This is especially true of shells and rare minerals, but may also be true of ivory, since mammoth remains are virtually absent from Aurignacian I sites (Delpech 1983) in SW France (although the collection by Aurignacian people of subfossil ivory from geological sources is a distinct possibility; see below). In general, rare minerals in France fall off with distance from point of natural origin. For example, talc attenuates as one proceeds north from the Pyrenees. Like-

wise Atlantic and Mediterranean shell species attenuate as one proceeds into the French interior.

Contribution of Raw Materials to Representational Form: Mammoth-Ivory as a Raw Material

Proboscidean tusks are merely specialized teeth (upper incisors), and are composed predominately of dentine. In contrast to many other ivories, mammoth and elephant tusks have a complex structure (Figure 6) formed by specialized cells known as odontoblasts. These odontoblasts produce new dentine along the lining of the pulp cavity. As new dentine is produced, the odontoblasts migrate to the new surface of the

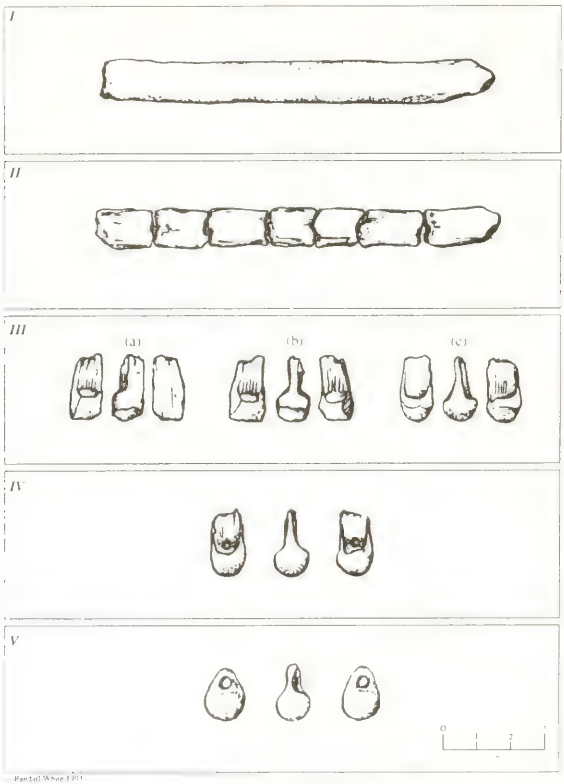

FIGURE 4. The production sequence for Aurignacian I basket-shaped beads

pulp cavity, leaving behind processes known as dentinal tubules (MacGregor 1985) or so-called Hunter-Schreger bands. These "radiate outward from the pulp cavity and incline obliquely towards the tip" of the tusk. The result, in transverse section, is a complex three-dimensional structure (Figure 7) that takes the form of arcs running counter to each other across the width of the tusk, and producing by their intersection what are frequently referred to as "engine-turnings" of the Hunter-Schreger pattern.

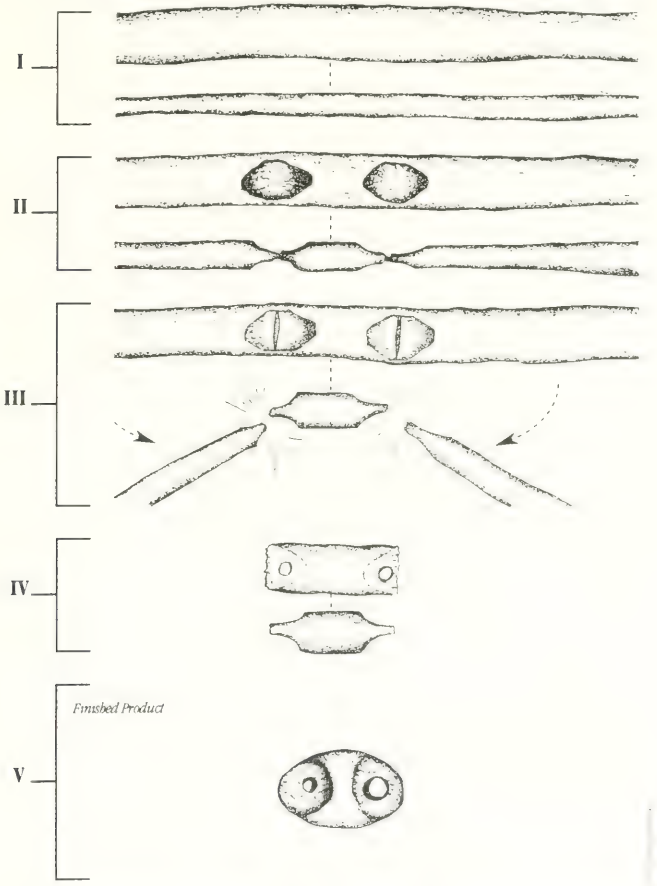

FIGURE 5. The production sequence for south German Aurignacian I two-holed beads (after Hahn 1986)

In transverse section, this Hunter-Schreger pattern crosscuts broad concentric rings often referred to as laminae (Figure 8). These are actually growth interfaces between superimposed cones of ivory. In living tusk, the boundaries between these laminae are not areas of structural weakness, being bound together by the complex intersecting dentinal tubules composing the Hunter-Schreger lines and by collagen fibers that fill the interstices between the dental tubules. However, upon desiccation and accompanying deterioration of dentinal collagen, tusks tend to split or spall along these concentric boundaries, which are far more developed in the outer zones of the tusk's diameter. The inner core of the tusk, in the area surrounding the central nerve canal, is highly compact, homogeneous and virtually immune to such spalling. As a result, such inner ivory is exceedingly difficult to work with stone tools. It is perhaps no surprise then that in ivory-rich Aurignacian sites in SW France, this "core ivory" is abundantly represented in the waste products of tusk reduction.

Ivory has properties (color, luster, softness or warmth of touch) that set it apart from such media as bone and antler. However, these qualities can only be realized by means of polishing with fine abrasives. According to Ritchie (1969), modern ivory workers prefer fine metallic abrasives including jeweler's rouge, which is nothing more than hematite/red ocher. Indeed, SEM analysis of Aurignacian I ivory beads (White 1995b) revealed particles of red ocher embedded in the fine polishing striae on their surfaces. Moreover, large caches of red ocher have been recovered from two of the richest ivory-bearing Aurignacian sites in SW France: Abri Blanchard and Abri Castanet (Didon 1911; Peyrony 1935).

Tools, Techniques and Gestures: Experimental Perspectives

My experimental research into the working of ivory falsified several naive misconceptions about proboscidean tusks as raw material. My first mistake was to presume that modern African elephant tusk was a suitable experimental analogue for woolly mammoth tusk. Although, superficially, the differences do not appear great, the two forms of ivory exhibit quite different fracture patterns that are the product of significant differences in the angle of intersection of Hunter-Schreger bands (known as Hunter-Schreger angles).

Contrary to my initial presumption, fresh tusks proved extremely difficult to break into, and to reduce to usable parts. Fresh ivory does not fracture along the large- scale concentric laminae observable in prepared sections, as we had so naively imagined. Nor can a fresh elephant tusk be sectioned longitudinally by beginning a split at the thin, hollow proximal end (pulp cavity) and propagating it toward the distal end of the tusk.

Neither Alaskan permafrost ivory collected in the 1920's, nor fresh African elephant ivory could be worked effectively by direct percussion. Attempts at direct percussion produced the same results that one might expect of hitting a stout piece of hardwood with a hammerstone! Indeed, there are distinct similarities in the response of hardwood and ivory to percussion and wedging, based upon similarities in structure and grain. Sizable flakes were removed by percussion only where the tusk had already been partially split by desiccation.

Neither fresh nor artificially desiccated (kiln-dried) African elephant ivory could be worked by splitting-and-wedging. Upon desiccation, elephant ivory developed incipient concentric fractures that conformed to the broad internal laminae of the tusk. However, these were too poorly developed to serve as points of access for wedges.

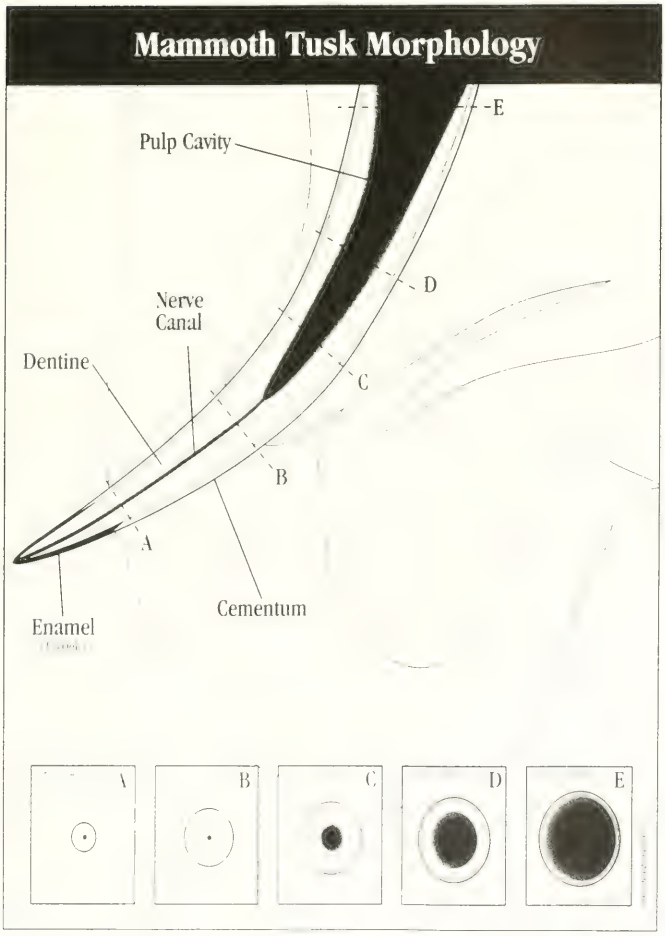

FIGURE 6. The morphology of proboscidean tusks

FIGURE 7. The intersecting Hunter-Schreger bands seen here in transverse section in a late Pleistocene mammoth tusk. A single desiccation fracture is seen to crosscut the bands.

FIGURE 8. Concentric desiccation laminae, seen in transverse section in a late Pleistocene mammoth tusk. Note the radial fractures crosscutting the concentric desiccation fractures.

Overheating in a kiln made modern elephant ivory so brittle that it was breakable by hand, and structurally weaker than many 35,000 year-old Aurignacian artifacts.

At the time I received it, the medial segment of Alaskan permafrost mammoth tusk showed a quite developed concentric fracture at a lamellar boundary near its external surface. Attempts to exploit this desiccation fracture by percussion-driven wedging from the distal extremity of this medial segment produced broad flakes that hinged outward part way down the segment's length. However, a split could not be propagated through the entire length of the segment, presumably because the lines of force were directed outward when they encountered the interfaces between "superimposed cones" of ivory. With enough labor however, it is certainly possible to scrape, grind and polish such large flakes of fresh ivory into desired forms. Thus, their employment by Aurignacian ivory-workers cannot be entirely excluded.

In addition, the slightly desiccated Alaskan permafrost tusk showed radial fractures that crosscut the concentric laminar fractures (Figure 8). While these radial fractures did not provide an effective purchase for percussion-driven wedges to split the tusk longitudinally, this is probably attributable to the extremely "fresh" state of the permafrost tusk. Similar attempts with more highly desiccated lamellar fragments of mammoth tusk led to considerable success in creating long, workable splinters by longitudinal splitting and wedging.

Splitting-and-wedging constituted a fundamental Aurignacian strategy (Knecht 1993) for working organic materials, but I conclude that they are/were not especially appropriate to the structure of fresh or even slightly desiccated proboscidean tusks. The use of subfossil tusks as raw material has been hypothesized previously by Hahn (1986) for the German Aurignacian and by Phillipov (1983) for the Upper Paleolithic of the Russian Plain. I think it nearly certain that, apart from some form of artificial drying or purposeful curing of fresh tusks, "subfossil" or at least mammoth tusks some years old were sought as raw material by Aurignacian ivory workers.

Even then, the production of long rods of ivory by splitting and wedging of tusks is not suggested by the structure of ivory, and is difficult to achieve. These rods seem to have been a preexisting goal of Aurignacian ivory workers even if they required the solution of significant mechanical problems. My best explanation for this determination by Aurignacian I ivory workers to obtain pencil-like rods of ivory is that it is a technique highly conducive to standardization. Cylindrical rods of roughly the same diameter lead easily to the production of standardized bead-blanks and ultimately standardized beads. I have shown elsewhere (White 1989) the high degree of standardization in Aurignacian beads, a standardization that I believe to be motivated by the anticipated arrangement of uniform, sewn-on beads on garments. In other words, the visual impact of Aurignacian beads was not as individual objects, but as arrangements constituted of uniform elements.

Laboratory experiments using Aurignacian blades of Bergerac flint, a fine limestone grinding stone, powdered red ocher and liberal applications of water (essential to softening and lubricating the surface of the ivory), produced stigmata and highly polished surfaces similar to those observed on Aurignacian ivory beads. Significantly, while most Aurignacian beads show traces of hematite, few if any of them are profoundly stained. In my experience working permafrost mammoth tusk, indelible staining only occurred when powdered hematite was mixed with fat or oil. The superficial nature of hematite deposits on Aurignacian beads supports the use of water rather than fat as a softening/lubricating agent.

In my experience, there is no archaeological evidence before Sungir (dating to *ca.* 28-25,000 years BP or earlier) for the preparation of whole tusks by softening (heat-

ing, boiling), which would have allowed the ivory to have been more easily worked. Even at Sungir however, the operational chain for bead production (White 1993) seems not to have employed thoroughly softened ivory. Simple soaking of tusks in water has only superficial effects. However, once the tusk is reduced to much thinner fragments, such soaking can penetrate the entire thickness, making drilling, scraping and gouging much easier. This soaking also works well on subfossil tusk fragments. Comparison of our experimental sample with actual Aurignacian production debris indicates clearly the use of water in the final stages of bead production.

In my experience with extant archaeological collections, there is no evidence in the Aurignacian for the oft-cited "groove-and-splinter" technique, so common in later periods. While grooving and splintering of fresh tusks is a feasible (if enormously tedious and time-consuming) approach, the splinters that exist in Aurignacian assemblages show no traces of having been incised out of the surface of the tusk. The French sites that have produced the greatest quantities of ivory ornaments and production debris have yielded few significant tusk segments that might yield insight into Aurignacian approaches to tusk reduction.

Contexts of Production, Use and Disposal

Lacking direct association between Aurignacian I beads and human skeletons, we are obliged to design research strategies to demonstrate first, that these were indeed objects of suspension and second, how precisely, they were suspended. A combined SEM/experimental replication program has already yielded to us significant insight into the attachment of Aurignacian basket-shaped beads. Sewn-on clothing beads are implied, but there is substantial variation in patterns of wear (Figure 9) on the surfaces of bead-holes.

Elsewhere, I have proposed that sites where beads were manufactured in quantity were special places on the landscape, perhaps loci of aggregations of otherwise distant groups. This would explain the hyperabundance of exotic raw materials in these sites. I have also noted that adjacent sites show abundant but differing frequencies of bead production stages, perhaps indicating more complicated divisions of labor than previously imagined. There is substantial evidence that beads were worked down to a penultimate stage (*e.g.*, perforated but not shaped by grinding/polishing, stored as such, and only finished at the moment at which they were to be sewn or strung). This may have allowed the ivory worker the flexibility to create a final product tailored to the size and form requirements of the moment.

More than 25% of Aurignacian I basket-shaped beads show prehistoric breaks, usually across the neck of the hole. This could easily be explained by beads broken off a garment during activity, or by the mending of garments at which time worn or broken beads may have been removed and discarded. However, if use and maintenance of beaded garments are suggested, so is intensive production of beads manifest in large quantities of fabrication debris. Caching of large numbers of beads, or even of whole, decorated garments, cannot be excluded and might explain the high percentage of intact, unbroken beads. Unfortunately, excavation techniques early in this century did not involve spatial proveniencing of artifacts; thus, spatial analysis within sites is impossible for the moment.

FIGURE 9. Wear facets on the inside of the holes of talc basket-shaped beads from Abri Blanchard, France (Scale in mm)

Case Study II: Gravettian Anthropomorphic Figurines

My goal in this case study is to illustrate how detailed observation and experimen-tation aimed at understanding Upper Paleolithic female image production can lead to new insights into the social, economic and ideational contexts of the objects themselves. In so doing, I seek to reemphasize (see White 1996b) and avoid some of the dangers and misunderstandings evident in recent writing on the subject.

The Sample

I am concerned here with anthropomorphic representations, especially sculpted figurines, traditionally attributed to the Gravettian culture 28-22,000 years BP. In contrast to recent American writers on the subject (Rice 1981; Nelson 1990), I do not consider it acceptable to treat all of Upper Paleolithic female imagery as if it were a coherent whole. It is not! The Magdalenian and the Gravettian are worlds apart in terms of the diversity, form and context of female representations. However, Bisson and others (1996) indicated that so-called Gravettian figurines from Grimaldi cover a much longer chronological range. Dating problems notwithstanding, the proportion of decidedly pregnant female images differs dramatically between these two cultures (Duhard 1993).

My geographic scope over the past few years has been from the Atlantic seaboard of France to the Don Valley of European Russia. I have examined, with varying degrees of precision, approximately 100 of these figurines, including those from Grimaldi, Savignano, Sireuil, Tursac, Abri Pataud, Trou Magrite, Willendorf, Brassempouy, Lespugue, Dolni Vestonice, Predmosti, Avdeevo, Kostienki 1, and Gagarino.

Lying behind the previous lack of recognition of differences between the Gravettian and the Magdalenian are serious terminological problems that mask significant differences in the technology of representation between the two cultures. In particular, the term "Venus," which is interpretive rather than descriptive, has been used in such an all encompassing way as to give the illusion that the repertoire of female images in the Magdalenian is simply a continuation of that of the Gravettian. Nothing could be further from the truth.

My position is that descriptive terminology should be based in representational techniques, rather than in presumed but undemonstrated function, meaning or viewing context. Even the terms statuette and figurine probably presume too much. Terms such as *female bas-relief in limestone*, or *sculpted female in ivory* or *woman molded and fired in loess* are preferable, in that they provide an understanding of raw material, technique and subject, without embedding meaning in description.

Female Representations as an Analytical Category

A question never asked is whether female representations constitute a discrete, natural category of analysis. I find it troubling that associated imagery, and its relationship to female representations is seldom examined. It is noteworthy that in every region in which female figurines exist in the Gravettian there are accompanying representations of other subjects, from animal to geometric; and these vary greatly by region. To my knowledge, the only scholar to have addressed this question with respect to female figurines is Henri Delporte, who notes an association in Siberia between images of women and birds; and in France between women and bison.

Châine Opératoire for Gravettian Female Sculptures

For our purposes, the general constituents of a *châine opératoire* for female figurines might include the following, keeping in mind as previously stated that archaeologists usually address the components in reverse order:

1) Cultural assumptions about women.
2) Beliefs about the relationship between materials, representational acts, re-pre-sentational constructs and social/supernatural efficacy.
3) Choice and acquisition of raw material.
4) Choice of subject matter.
5) Organization of production, (social, temporal and spatial).
6) Combination of gestures and tools into techniques for figurine production that are coherent with the encompassing, regional technical system and that enable
7) Representation of desired signifiers of social identity, age, reproductive status, supernatural associations, *etc.*
8) Use of the female representations in (socially, esthetically and cosmologically) meaningful acts.
9) Disposition of the figurines based on ideas about their residual power and efficacy.

The Grimaldi Subsample

I wish now to illustrate the insight that can be gained by analyzing in detail a group of figurines with the above operational scheme in mind. I will focus in particular on

15 anthropomorphic figurines from Grimaldi (Liguria), Italy, seven of which had never been analyzed or published (Bisson & Bolduc 1994; Bisson & White 1996). In concluding, I will attempt to place these in a broader European context with respect to the technology of figurine production, use and disposition.

The 15 objects (Figure 10) in question were recovered from the sites of Barma Grande and the Grotte du Prince between 1883 and 1895 by Louis Jullien. Presently, seven of them are in the Piette Collection at the *Musée des Antiquités Nationales at Saint Germain-en-Laye* outside Paris, one of them is in the Peabody Museum at Harvard, and the remaining seven are in private hands in Montreal, where Jullien emigrated in 1898.

Raw Materials

The sample of 15 figurines breaks down as in Table 1:

Table 1. The raw material breakdown for the 15 Grimaldi sculptures.

Raw Material	Number of Figurines
Fossil ivory	1
Bone or subfossil ivory	2
Light green fibrous serpentine	2
Dark green fibrous serpentine	5
Dark green chlorite	4
Yellow talc	1

All of the soft stone materials are from relatively local alpine sources, that is, within 100 km from the Grimaldi sites. Hardnesses vary from 1 to 4 on the Mohs scale. Several other objects from the Grimaldi sites, especially beads and pendants, are manufactured in similar soft stones. Ivory and soft stone are the same materials that dominate the sample of Gravettian female images across Europe. Although the use of these silicates, such as talc, steatite and serpentine, can be explained by their being relatively easy to work, they also have remarkable tactile qualities. Especially when polished, they are indistinguishable to the touch from the warm lustrous sensation of polished ivory. I propose that, as in the case of Aurignacian beads discussed above, in our pursuit of the meaning of Gravettian female representations, we have focused too little attention on carefully chosen and constructed tactile qualities that had/have enormous evocative potential.

The ivory, constituted of unmineralized to partially mineralized mammoth tusk, was probably obtained from known geological exposures (Giraudi 1981, 1983). Mammoths were not present in Italy during the Late Pleistocene, although a small number of ivory objects, notably pendants, have been recovered from Upper Paleolithic sites in Northern Italy. Exchange with groups farther north is certainly a possibility.

Certain raw materials are conspicuously absent, although they are key constituents of organic and lithic tools such as spear points, awls, lamps etc. Notably, bone, antler and limestone are absent. This severe choice may have nothing to do with workability, as some of the substances ignored are more plastic than those chosen for figurine production. Raw material choice may have responded to the pursuit of visual and tactile qualities, and to the cosmology surrounding certain substances.

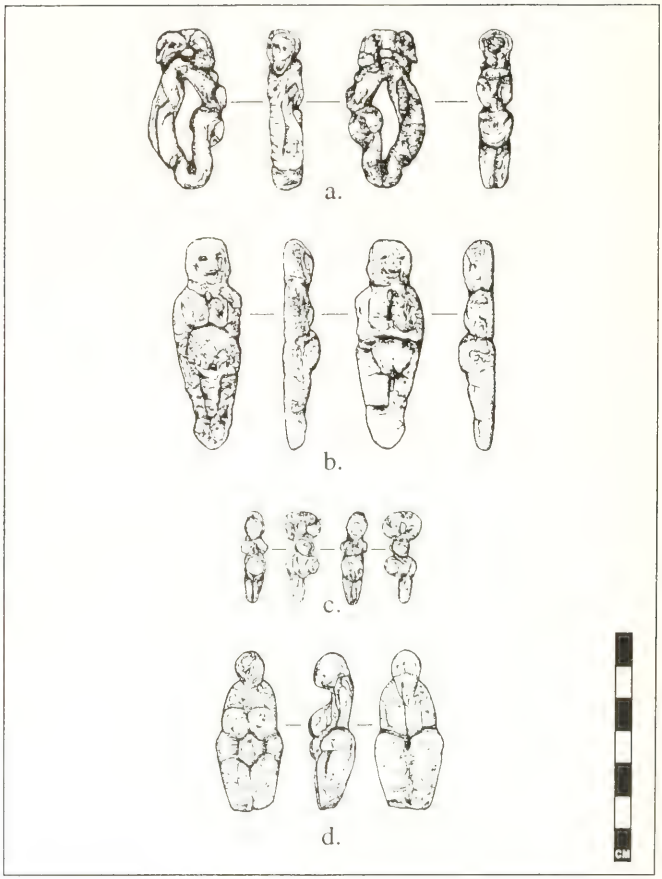

FIGURE 10a-d. Fourteen of the anthropomorphic figurines from Grimaldi, Italy

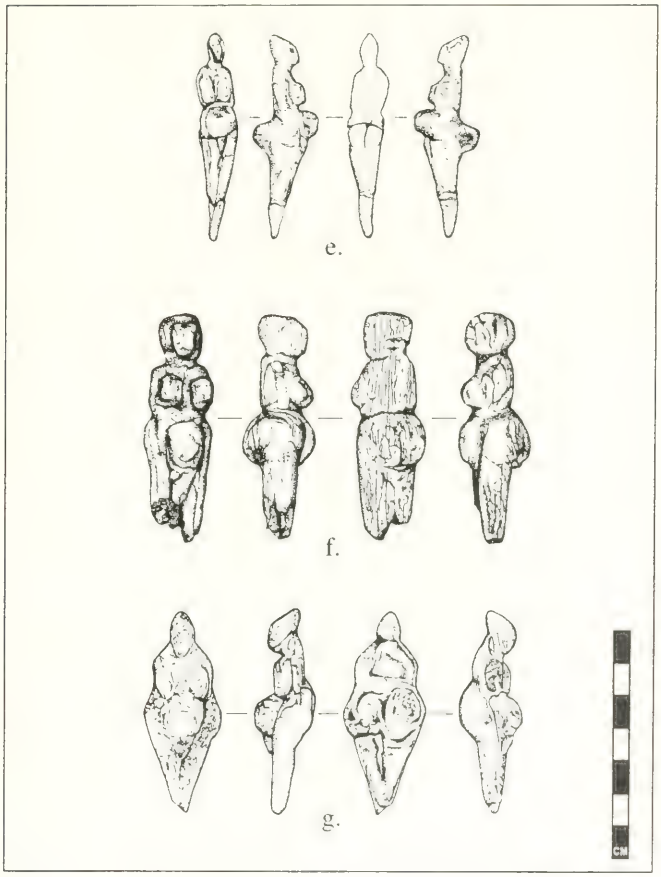

FIGURE 10e-g

FIGURE 10h-k

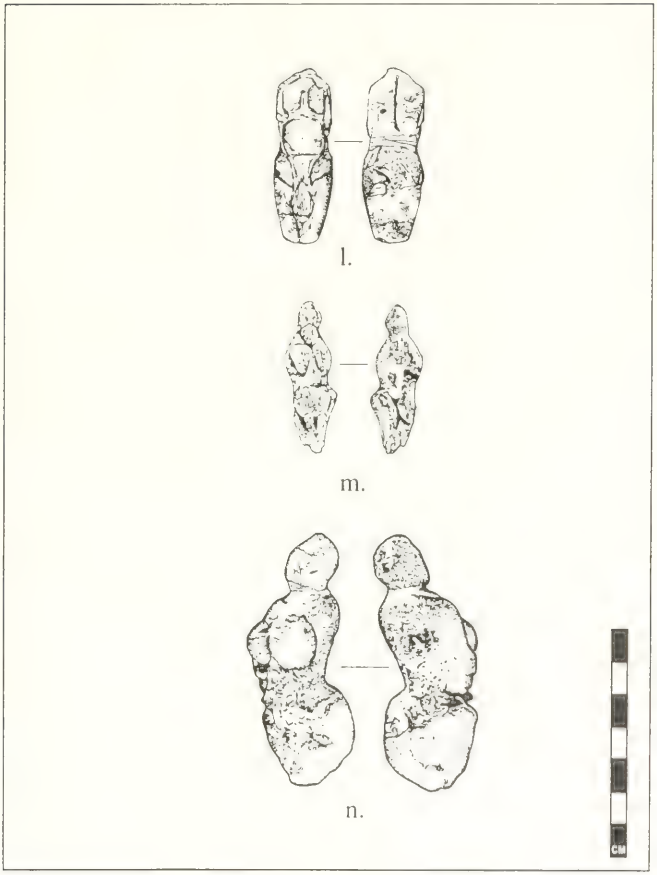

FIGURE 10 l-n

Contribution of Raw Materials to Object Form

The form in which raw material was obtained seems to have influenced in some cases at least the size and form of the finished figurines. Octobon describes an unworked serpentine pebble, oval in form and flattened in section like a skipping stone. This shape of support accounts for the flattened shape of the *Femme au cou perforé*, *le buste*, *la figurine aplatie*, *le figure* and *la double figurine*. For example, close examination of *la double figurine* (Figure 10a) reveals that the fissure separating the human and the animal figures was a natural flaw in the stone that conditioned the design of the piece. The minuscule scale of the Grimaldi specimens would be explained if supports for the remaining figurines were as small as the pebble described by Octobon.

Formal Attributes of the Grimaldi Figures

All of the 15 sculpted representations from Grimaldi appear anthropomorphic. The overall inventory with sexual/reproductive attribution shows an obvious predominance of *pregnant* women among complete figurines (Table 2). Three of the 15 have two faces sharing the same body. In two cases these are *human* heads back to back, while a third juxtaposes a human head with that of an animal. The three cases of two-faced figurines is, so far as I am aware, unique to Grimaldi. It is also worth noting that the several cases of blank visages are very explicit: that is, faces are not simply absent, empty faces are very carefully constructed.

Table 2 Sex and reproductive status attributions for the 15 Grimaldi sculptures

Specimen	Sex	Status
La Tête negroïde (broken)	?	?
Le Polichinelle	I	pregnant
La Figurine non décrite (broken)	?	?
L'Hermaphrodite	F	pregnant
Le Losange	F	pregnant
La Femme au goitre	F	pregnant
La Statuette en stéatite jaune	F	pregnant
La Femme au cou perforé	F	pregnant
Le buste (broken)	F	?
Le Figure (possibly animal)	?	?
La Figurine en ivoire brun	F	pregnant
La Figurine aplatie	F	?
La Figurine en ivoire à l'ocre rouge	F	pregnant
La Figurine double	F	pregnant
La Femelle à deux têtes	F	pregnant

Tools, Techniques and Gestures

Microscopic and experimental analysis reveal characteristic stigmata of techniques of gouging, scraping, abrading and incising in the production of the Grimaldi figurines (Figure 11). The redundancy with which these techniques are applied contributes to a remarkable consistency in breast and abdominal form, as well as hair treatment. Technical differences between ivory and soft stone (chlorite/steatite/serpentine) sculpting at Grimaldi and more-or-less contemporaneous Russian sites (where ivory and marl predominate) could not be clearer. The Russian female figures show a predominance of gouging and especially abrasion allowing for much smoother contours than the highly incised and much more angular Grimaldi women.

However, the forming of the figurines is only part of the story. There is also clear evidence for burnishing, polishing and, seemingly, glazing (Figure 12). These latter techniques produce visual and, once again, *tactile* qualities not producable by stone tools alone. Both polished ivory and polished/glazed serpentine have very special tactile qualities that may speak to one of the sensory means by which the figurines were experienced (White 1996b). Moreover, the process of heating talc dramatically deepens its raw color throughout its thickness.

Technological Perspectives on Hair and Clothing

What technologies are codified in representation (*e.g.,* hairstyles, clothing, etc.: cf. *Dobres* 1992) and how can careful technological analysis inform such interpretations (e.g., *string aprons,* hair nets)? The Grimaldi figurines are essentially silent on this point, in contrast to many of the Russian figurines, which make explicit reference to clothing and adornment. There is nothing in any of the Grimaldi objects to contradict the sense that nude women were intended.

Other Subjects of Representation

Although there are provenience problems, a small number of nonhuman representations occur at the Grimaldi sites. These are essentially pierced talc objects with patterned incisions similar to those found on at least two of the female figurines.

Contexts of Use and Disposal

Eight of the 12 unbroken figurines from Grimaldi are perforated for suspension (Figure 13) and others such as *la figurine en ivoire brun,* have carved furrows suggestive of suspension. Of course, suspension can take many forms in addition to the wearing of these objects on the body. For example, they may have been suspended inside dwellings attached to articles such as skin bags and baskets.

Like many of the Gravettian figurines recovered to date, the Grimaldi speci-mens were found (to the best of our knowledge) carefully placed in an area peripheral to intense human occupation. They come from two sites, the Grotte du Prince and Barma Grande. While those from the Barma Grande were recovered from occupational horizons, those from the Grotte du Prince were found in a small niche adjacent to the main cave. Michael Bisson and I are working on comparisons of sediment on the figurines with that still adhering to artifacts of known stratigraphic provenience. More interpretively, we have proposed (Bisson & White 1996) particular use contexts for the Grimaldi figurines, to which I now turn.

The Grimaldi sculptures, which are small and designed for suspension, fit the ethnographic pattern of amulets or fetishes. However, the majority of human figurines made by living circumpolar peoples are significantly different from the Grimaldi figurines in gender ratio, a much higher frequency of facial and extremity detail, and a much lower incidence of genital and abdominal prominence. Since the circumpolar ethnographic record is clear that recent human sculptures were used to promote fertility, these contrasts strengthen our doubts about a fertility magic explanation. Nevertheless, given the tendency of depictive amulets to represent unambiguously the intended goal of the user (*i.e.*, many hunting amulets were naturalistic sculptures of

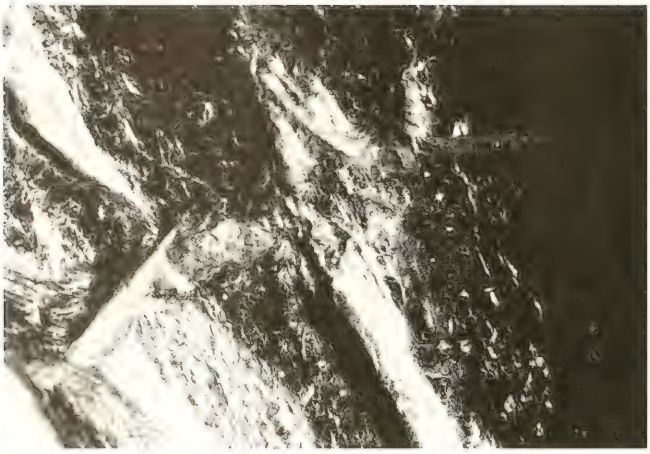

FIGURE 11. Distinct stone tool marks on the surface of one of the Grimaldi figurines

desired prey animals), it is most likely that the characteristics of the Grimaldi figurines refer to a reproductive context, and that this context was childbirth itself.

Use of the Grimaldi, and at least some other Gravettian female sculptures in the context of childbirth is consistent with an archaeological context in which they are often found in clusters as if cached away for future use; childbirth being an occasional occurrence in small human groups. Moreover, the idea that the sculptures themselves were perceived as having power is supported by recent finds from Avdeevo on the Russian Plain (Grigoriev 1996 and personal communication). There, in addition to purposeful pit-burial of whole sculptures, sometimes more than one to a pit, Govozdover and Grigoriev have found fragments of the same broken figure buried meters apart in meticulously dug pits of a special, cone-like form. If the sculptures were perceived as inherently powerful, it is easy to imagine that the disposal of broken examples would have been attended by great care and ritual.

Childbirth is both an emotionally charged and potentially dangerous event. It is predictable in its general timing (*i.e.*, the average length of gestation), but unpredictable as to the timing of the onset of labor, the sex of the offspring, and the survival of the mother and/or child. We hypothesize that the Grimaldi figurines are best interpreted as individually owned amulets meant to ensure the safe completion of pregnancy. Amulets employ the principle of similarity to influence the outcome of uncertain events. They are often made by their owners, although they may also be obtained from shamans. Since the ethnographic record shows that in many societies amulets are thought to gain power with age, the sculptures may have been passed from mother to daughter over a number of generations.

This scenario also satisfies many of the legitimate demands of the feminist critique. It does not require the figurines to represent a generalized concept of womanhood, but instead recognizes that they may be produced by and for individual

FIGURE 12. Heat induced glaze on the abdominal surface of "*la double figurine.*"

women, with no necessary inclusive or monolithic meaning that derives from gender alone. Individual production probably accounts for the great variability of the figurines. Our interpretation also does not imply the subordination or commoditization of women as do the fertility goddess (Gimbutas 1989), paleopornography (Guthrie 1979), and mating alliance (Gamble 1982) scenarios. Instead, we recognize the importance of women in themselves, not just as sources of babies, since we suspect the motivation behind these amulets was the survival of the mother rather than the baby. From this perspective, women are envisioned as taking active control of an important part of their lives using magical means that would have been entirely rational within their cultural context.

We conclude with the observation that the pregnancy symbolism of the Grimaldi figurines need not be their only symbolic meaning, although it would seem to be a primary one. Clan or guardian spirits may also be invoked, particularly by parts of the body such as heads, hair, duplicate faces, associated animals, *etc.*, that are not directly involved in *our* notions of reproduction. In each case these additional referents can be

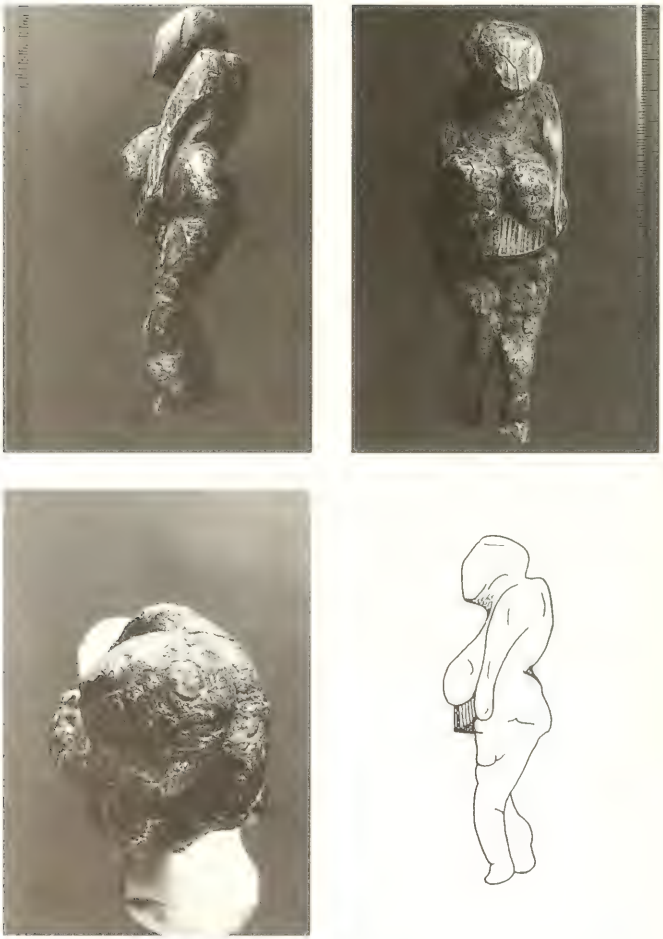

FIGURE 13. The gouged perforation (top) and additional detail on the front of "*la Figurine aplatie*."

seen as statements by the makers of the figurines, perhaps with respect to the actual spiritual source from which the amulet draws its power.

Conclusions

I believe that the above approach of close observation and analysis, conceived in terms of a version of Leroi-Gourhan's *chaîne opératoire* expanded far beyond simple production events to include broader social and cultural contexts in which those events occur, serves as a substantial foundation for accessing domains of thought and action in the distant past. In particular, a broad technological perspective, when combined with indications of archaeological context and the prudent and restricted use of relevant ethnographic analogues leads us to consider new interpretive frameworks. This framework, I believe, has the merit of situating Aurignacian beads and Gravettian/Epigravettian female sculptures, not in some broad, culturally mandated system of bodily adornment, erotic or reproductive iconography, but in culturally appropriate but very personal and individual practices by which real people negotiated the normal challenges (physical, social and spiritual) of everyday life.

To return to the original issue of meaning, I wish to reemphasize the multidimensional nature of constructed and construed meanings, meaning viewed here not so much as ideas but as highly contextualized productions, performances, choices and skills. I hope that I have made obvious the futility of maintaining "art" and "technology" as distinct categories of analysis.

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Section II

Approaches to the "Why's" of Presence and Absence

The Power of Pictures

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Europe is a small and not very well-defined peninsula of Asia which has had a significant influence on the cultural development of modern humans. Arguably, the most fundamental influence is not the sculpture of the Classical Greeks, the paintings of the Italian Renaissance, the plays of Shakespeare, or the musical tradition of Mozart and Beethoven, but the paintings and engravings of the Upper Paleolithic between 30 thousand years ago (kyr) and 10 thousand years ago (kyr) in a small region of (mostly) western Europe (Aujoulat *et al.* 1993). I will argue in this paper that early humans worked out their relationships with land and with each other through this "art." The similarities between the sequences of changes in different regions suggests this was not just the product of individual historical particularities, but part of a single process by which humans explored the limits of recently-discovered symbolism. So important was this in establishing what it was to be a human in these regions that it is probably misleading to call the paintings, engravings, drawings and stencils *art* at all, given the baggage that that word carries with it.

I have attended to the problem of definition elsewhere (Davidson 1992). I note here that "art" is that making or marking of surfaces people talk about when they refer to paintings, engravings (including sculptures), drawings and stencils of the Pleistocene. It is sometimes convenient to refer to this making or marking of surfaces as PEDS. Whether this "art" meets anyone's criteria for art is entirely up to them. I do not believe it is useful or necessary to attempt to define art (without the inverted commas), because as every controversy about art, from Braque to Warhol to spray-can graffiti, indicates whether something is art depends on whether someone thinks it is. It is not analytically possible to explore the origins or significance of such a concept. I set out below our argument about language origins. It is impossible for creatures without language to hold the opinions about making or marking of surfaces that make them art. It was only after the processes described in this paper that we might consider this as art, though, even then, its functions were probably as complex as those of art today.

Duff, Clark and Chadderton (1992) take the Upper Paleolithic as the standard for recognizing symbolism but admit that it is also anomalous, because symbolism did not emerge elsewhere in the world populated by modern *Homo sapiens*. Schepartz

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(1993) suggests the "blasphemy" that "most of the spectacular art of the Upper Paleolithic is irrelevant to the origin of modern *Homo sapiens* and complex language." Schepartz goes on: "its late occurrence after 35,000 BP in the region where unquestionably modern *Homo sapiens* is last identified makes it an afterthought or addendum to modern human origins."

It is my purpose in this paper to take up the challenges of these statements. First, is it useful to consider the Upper Paleolithic as the standard for recognizing symbolism in the archeological record? Second, is it true that there is no comparable patterning in the rest of the world of the Late Pleistocene? Third, is there any common thread in the sequence of changes in Upper Paleolithic art and in Australian prehistoric art that enables us to understand the significance of both in the evolution of human behavior, and should we expect that this pattern would be repeated in other regions of the world? I will suggest that, insignificant though Europe may be, the art of the Upper Paleolithic was far from insignificant, not irrelevant and not an afterthought. It gives us unique insights into evolutionary processes that were far from unique for they probably defined the very nature of one way of being a modern human.

Language and Symbols

I shall be taking it as a fundamental assumption throughout that language emerged late in human evolution. It is a position that we have expended much effort in arguing (*e.g.*, Davidson 1991a; Davidson & Noble 1989, 1992a, 1993a; Noble & Davidson 1989, 1991a, 1993a, 1996) and should not need to argue here. We recognize that there is an argument that cranial expansion is first identifiable two million years ago (*e.g.* Falk 1987; Tobias 1987) and that there is some argument that the regions of the brain relevant to language production emerged at the same time (Falk 1983; Holloway 1983). We recognize too that the vocal apparatus evolved gradually over the course of human evolution (Lieberman 1991; Lieberman *et al.* 1992) so that individual discoveries of relevant portions of the anatomy from different periods may give the appearance of suitability for modern language production through speech (Arensburg *et al.* 1990; Arensburg *et al.* 1989). But language must be distinguished from other forms of communication in two fundamental characteristics: its production and comprehension in any of a number of different modes, such as speech, sign, or writing; and its use of symbols in any of these modes. It is crucial to our argument that the transition between language absence (though surely with vocal and other communication) and language use involved the recognition of symbols. We see no evidence that the argument which associates an early language origin with the early encephalization step is supported by a credible case for symbol use.

Like Chase and Dibble (1987; Chase 1991) we see symbolism as a phenomenon of the Late Pleistocene, though details of our argument are rather different from theirs. Our speculative scenario about the transition involves the production of signs which we would recognize as iconic. This has been represented as meaning that we believe that the origin of language can be identified in the origin of art. I do not wish to get bogged down in refuting that argument (again), rather I shall be exploring the implications of a late language origin for our understanding of aspects of the archaeology (including "art") of the Late Pleistocene. For the record, we have argued that the earliest evidence which requires an interpretation that there were people who had language is the fact of colonization of Australia (Davidson & Noble 1992a) around 60 thousand years ago, though this necessarily entails that there was an origin of lan-

guage earlier, in Asia, for which we have no evidence. This seems to be 20 thousand years earlier than the Upper Paleolithic of Europe.

We have developed one other argument that is fundamental to the framework I shall discuss here (Davidson & Noble 1992a; Noble & Davidson 1993a): The arbitrariness that is a distinctive feature of the symbols which characterize language and no other communication system results in the possibility of ambiguity. Cheney and Seyfarth (1990) describe how vervet monkeys attending to the calls of their conspecifics have different behavioral responses to calls uttered in the presence of a leopard, an eagle or a python as if the calls were alarms with "meanings" such as "Watch out! There is a leopard (eagle, python)!" This communication system has no possibility of ambiguity because it is honed by natural selection. There can be no more perfect communication than one with unvarying signals produced in response to precisely defined stimuli such that they elicit consistent behavioral responses from the receiver. But language, characterized by conventionally defined arbitrariness has an inherent potential for "untrustworthy communication by accident or design" (Davidson & Noble 1992a). As we wrote previously:

> Successful *communication* using language, thus requires means of identification, by the partners in the exchange, that the utterances are trustworthy. Through this, members of human groups can confer the advantage of information and knowledge on an ingroup and restrict access for an outgroup....

In tracing the evolutionary pattern of behavior emerging after the first emergence of language, we would expect that the archeological record would show signs of the ways in which people coped with this phenomenon. Dunbar (1993) has recently alluded to the use of emblems among early language users. We suggest that there should be signs of these in the archeological record. Moreover, we see it as fundamentally significant in this argument that Barbujani & Sokal (1990) have demonstrated that, in modern Europe, language variability has been responsible for creating genetic diversity.

The Meaning of "Meaning"

Many of the innovations in the study of Late Pleistocene paintings, engravings, drawings and stencils (PEDS) have come from a recognition, which I trace to the publications of Conkey (*e.g.,* 1978) in the late 1970s, perhaps influenced by Ucko and Rosenfeld's (1967) demolition of Leroi-Gourhan's more extreme fantasies, to the effect that we can never recover the "meaning" that prehistoric pictures may have had for people, either makers or observers, at the time of their making. As Conkey (1987) put it: "We cannot expect to capture 'meaning' as a single, inclusive, empirical entity or category of our inquiry."

Macintosh's (1977) simple demonstration of the difficulty of corroborating interpretations of meanings brought this home to Australian scholars. In this case, plausible identifications of the figures in rock paintings at a site in northern Australia were generally different from the identifications made by an Aboriginal informant. If this was true even for one case, the significance was clear for *all* studies of prehistoric paintings, engravings, drawings and stencils. Identification of the "meaning" of "art" even at this simplest of levels was enmeshed in the social context of making the identifications. For many of us, this was an observation that did not need to be made since the proposition was obvious. In saying that, I have to acknowledge that we had not immediately recognized the liberating effect that Conkey's work (much less that of

Macintosh) would have for the study of late Pleistocene archaeology. The proposition is now made abundantly clear by the publication of Morphy's (1991) most detailed study of the production of meaning in a society that lives by producing pictures. Here we see that the original meaning can only be said to exist through the contexts of production and consumption of either individual paintings or parts of paintings. Although this is an example from Australia, I am confining my reading of it to the most general interpretation that can be translated into other cultural situations.

It follows from Morphy's argument and evidence that discovering the "original" meaning is more likely to be an accident than a result of the subtlety of our analysis, since *we* are unable to become partners in the contexts of production or consumption. Even ethnoarchaeology of "art" is vitiated by this observation: Unless and until writing about "art" analytically becomes part of the contexts of production and consumption of the "art," it will always be true that the analysis stands outside that original meaning.

There may be an element of truth in the proposition that for the participants in the context "the meaningfully constituted material record is not an 'expression' or 'reflection,' nor even a 'record,' but an active, constructing, constituting agency, which does not express meaning, but produces it" (Conkey 1989), but not for nonparticipants. The material record, being an object and not a person, cannot ever be an agent in the process of producing meaning. People may, through material things, actively construct and constitute something, especially in the sort of context of modern people described by Morphy. They may even produce meaning by their interaction with material that is not modern, usually in terms of stories about the past. Sometimes, we believe that those stories tell us about similar interactions of construction and constitution in the past, by different people with the *same* materials. Usually we look for a way to determine whether our stories are more or less plausible than others, for without that we have only three, not wholly satisfying, characterizations of the stories: 1) they are "intellectual games for the meritocracy"; 2) "the materials speak to me"; and 3) the stories (about the past) are *only* about the production and consumption of meaning in the *present*, and, as with "art," they are concerned with the construction and constitution of social relationships between the story teller and the audience (if any).

In this view, meaning is not a property of the "art" or any other material, but of the interaction between the human agents and the material. The meaning I will find in the earliest "art" produced by people is more a product of my thought than it is of their view of the "art." Whether anyone agrees with me about this interpretation will be a matter of their opinions of me or my argument (though they will probably couch it in terms of *their* view of some part of the same material). It is inevitable that the perspective I will take, given that I can see material from a period of 25 thousand years, differs from any perspective available to any participants in the process of production.

Investigating Contexts

Freed from the search for meanings of individual images or groups of them, the way was open for attempts to integrate studies of Late Pleistocene "art" with other studies of the archaeology contemporary with the pictures. The problem has always been the lack of chronological resolution for the paintings and engravings on cave and shelter walls, but now that we may be poised on the brink of a revolution in that area (Clottes *et al.* 1992, Lorblanchet *et al.* 1990, Loy *et al.* 1990, McDonald *et al.* 1990, Valladas *et al.* 1992, Van de Merwe *et al.* 1987), the full potential of the study of paint-

ings and engravings in the context of other aspects of prehistoric societies may be realized. My caution about whether direct radiocarbon dating of paintings by Accelerator Mass Spectrometry (AMS) will provide the hoped for chronology derives from recent research which shows how complex is the organic environment of prehistoric paints (Ridges 1995), suggesting that most dates published hitherto should be considered with caution (see also Watchman, this volume).

My own first attempt at integration occurred in 1980 at the completion of my Ph.D. thesis on Late Pleistocene fauna and economy in eastern Spain (Davidson 1989c). Discovering that *Clan of the Cave Bear* had just been published, making foolish my desire to turn the thesis into a novel, I turned my attention to a subject deliberately neglected, though not ignored, in the thesis: the painted and/or engraved plaquettes from Parpalló. In trepidation, I ventured into the world of "art" specialists from the relative security of faunal identification and found that Parpalló was even more significant than we already knew it was.

Parpalló is a cave site in the hills south of Valencia about 10 km inland from the present shore. It was discovered as an archeological site in the nineteenth century, and visited by Breuil in 1913. He found an engraved plaquette on the surface of the site. Pericot (1942) completely excavated the site in three seasons from 1929-31, finding, for the first time, a sequence of stone and bone industries from the region which could convincingly be compared to the sequences in France. The faunal remains were mostly of red deer and ibex, with some horse and cattle, species which exist in some form or other in Spain today. Thus, as the fauna provided no clues to the chronology, one of the important aspects of the easy comparison with French stone and bone industries was that the site could be tied to a chronology worked out in the more environmentally sensitive regions to the North. In my thesis I studied the bulk of the surviving faunal remains as well as the context of the site in the region. I obtained radiocarbon dates from the site from the faunal remains which established beyond doubt the accuracy of the earlier comparison between the industries of France and Spain (Davidson 1974), with a Solutrean date 20,490 +900/-800 years BP effectively identical to the date from Laugerie Haute, and a coherent series of dates that has allowed detailed comparison with the nearby dated site of Les Mallaetes (Bofinger & Davidson 1977; Fortea & Jordá 1976) for the period between 21 kyr and 14 kyr at Parpalló and 30 kyr and 10 kyr at Les Mallaetes (see Davidson 1989c for full discussion).

Breuil's discovery of an engraved plaquette proved not to be a lucky chance; rather it was a sign of what was to come. Pericot found large numbers of plaquettes stratified in the deposits at Parpalló of which more than 6000 surfaces were engraved or painted or painted and engraved. Some of these had 486 animal figures (of which 250 are identifiable [Villaverde Bonilla 1992]) which allowed acceptable identification of species.

On the basis of these identifications I was able, in the thesis (see Davidson 1989c: 59-60, 229), to make a comparison between the fauna in the site and that in the pictures. As with almost all other studies of prehistoric pictures, of course, the pictures were "neither a check list nor a menu" (Vinnicombe 1972) but this was the first study where a large number of pictures of known date could be compared with the bones from the same date and this over a period of several thousand years.

The plaquettes have recently been restudied (Villaverde Bonilla 1990, 1992; Villaverde Bonilla & Martí Oliver 1984), providing some new identifications and detailed analyses of style changes beyond what Pericot (1942) could attempt in the Spain of the late 1930s. The pattern of relative frequency of representation of animals in the pictures is different from their representation in the faunal remains in general.

Horse and cattle are relatively more frequent in the representations than in the bones (though there are taphonomic problems which prevent quantification of this). For the relative abundance of ibex and deer, ibex are underrepresented in the paintings and engravings in the early layers, though there is some correspondence between pictures and bones after the Last Glacial maximum. Whatever the primary reason for the accumulation of the faunal remains, human or nonhuman sampling (see Davidson & Estévez 1985; Lindly 1988), the result tends to confirm Vinnicombe's neat judgment.

The task I set myself was to consider the uniqueness of Parpalló. For all its similarity in stone artifacts to the sequences of France, Parpalló has proved to be outstanding in eastern Spain, and to some extent throughout the Upper Paleolithic world, in the abundance and distribution of the painted and engraved plaquettes. In eastern Spain there are still less than a couple of dozen other plaquettes with paintings and engravings, and very few of these have figures of animals on them. One of these is from Les Mallaetes and is from the layers earlier than the occupation of Parpalló, while two others are from the site of San(t) Gregori, 250 km to the north in Tarragona province, and is almost certainly later in date than the Parpalló tradition. It is not an exaggeration to describe Parpalló as unique. The problem is that it is impossible to find an explanation of unique events or phenomena; this can only come from finding a context in which the event or phenomenon is not unique. Even the more recent finds from Tossal de la Roca (D'errico & Cacho 1994; Ripoll López & Cacho Quesada 1990) seem to belong to a later tradition, probably contemporary with the San(t) Gregori piece (Figure 1).

I chose, for reasons I have elaborated elsewhere (Davidson 1989a), to emphasize the context of sites with paintings and engravings on stone plaquettes, and in doing so discovered that, although through western Europe there are many sites with one or two plaquettes, there are very few which have large numbers and these are rather surprisingly spread out. The list I came up with was Labastide, Gönnersdorf, Limeuil, La Marche, Isturitz, Badegoule, Enlène, Tito Bustillo and possibly Fontales (Figure 2).

I suggested (Davidson 1989a: 450) that:

> If we treat the "art" painted and/or engraved on plaquettes as a separate category of "art," with its own special information content, then we must conclude, either that "art" sites were aggregation sites (*cf.* Conkey 1980), or that information was not only imparted through the "art" but also restricted, or both. The evidence from the study of the prehistoric economy suggests that it was both.

The argument that followed was that the plaquette sites might all be considered as similar centers for the dissemination and restriction of access to meaning. I note that since my publication, Bosinski (1991) has assembled an argument that suggests that Gönnersdorf could have functioned in this way. Such restriction of access to information, I argue, indicates differential access to power in the Upper Paleolithic societies of Western Europe beginning about 21 thousand years ago. I believe this is the earliest reliable evidence for such social structure in the archeological record. Moreover, looking at the distribution of these sites suggests that there may have been a dynamic aspect to this tradition, with centers of power changing in number and distribution over a period of ten thousand years.

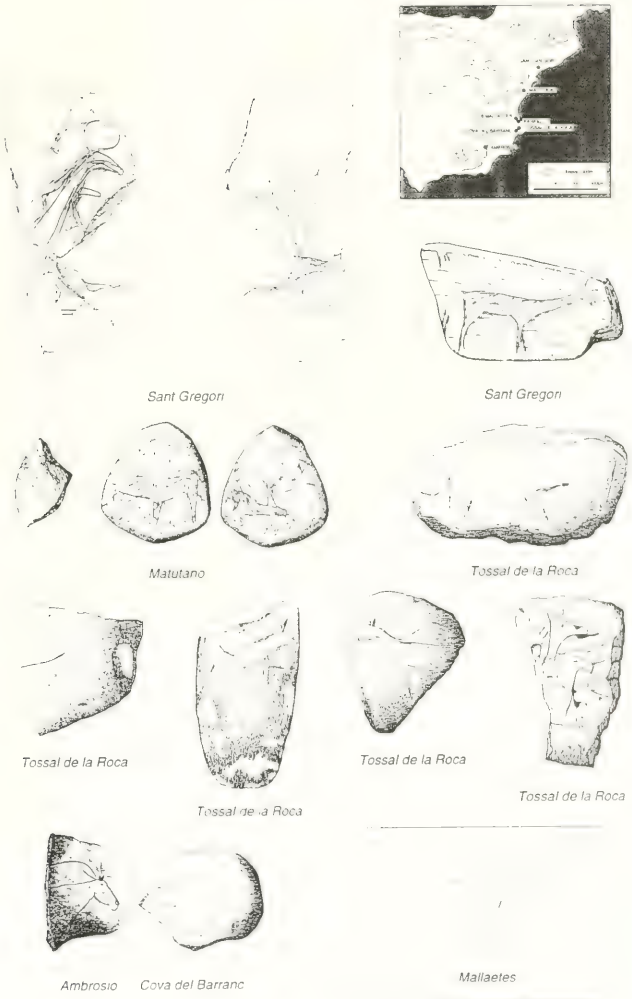


FIGURE 1. Plaquette representations from sites in eastern Spain, other than Parpalló. From Fortea Pérez (1978), Fullola i Pericot, Viñas i Vallverdu, & Garcia Arguèlles i Andreu (1990), Olária *et al.* (1981), Ripoll López & Cacho Quesada (1990)

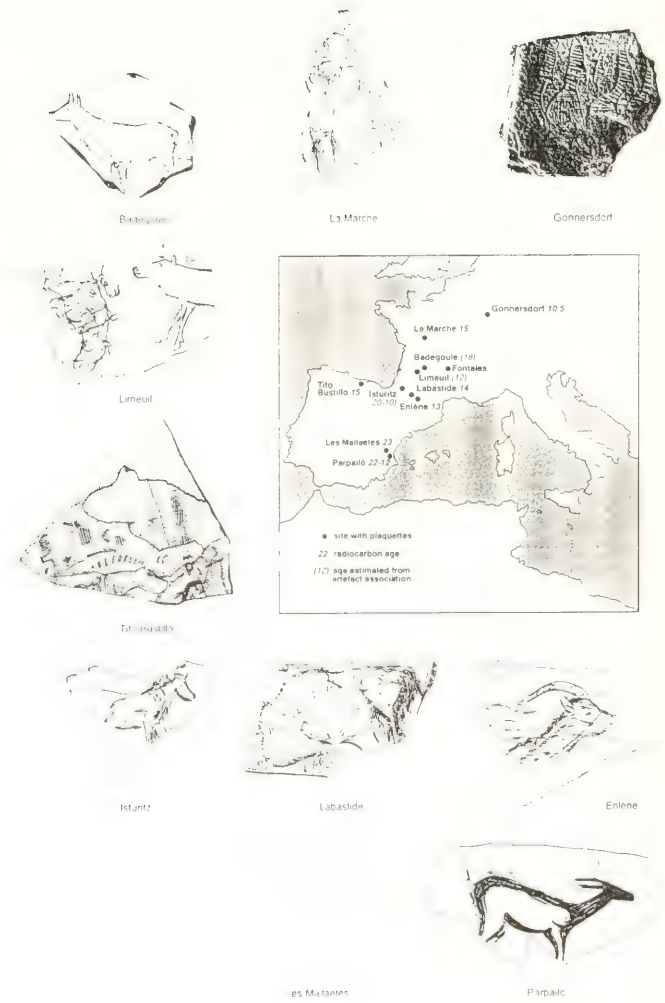


FIGURE 2. Sites with many plaquettes (including Parpalló), showing approximate dates of presence of plaquettes.

Categories of "Art"

In my discussion of the plaquettes (Davidson 1989a) it was absolutely necessary to consider that different categories of "art" might have different contexts of meaning and that in any society such different contexts of meaning might not be excluding. That is to say that the presence of one category of "art" with its contexts and meanings does not exclude the possibility of another category in the same society having entirely separate contexts and meanings. There may have been a multiplicity of contexts for the use of "art." The example I gave was the historical use in Australian Aboriginal society of designs on shields and on message sticks. Although there are some similarities between the designs on these two categories of objects, the contexts of their use were very different. Designs on shields are large and visible, and while the designs could be used to signal a friendly presence, more often they would have indicated that the bearer of the shield had some expectation that it might be needed for defense. (Note, in passing, that the advertisement of difference must imply some convention of understanding of meaning across a boundary.) Message-sticks on the other hand were used in contexts of interpersonal communication to facilitate friendly interaction (Figure 3).

Analysis of the designs on shields need not necessarily take into account that there were similar designs on any other category of object, but in a system where both categories were known to exist there might be different stories to tell about groups which used both categories and groups which used only one or other of them. At Parpalló I found that I needed to satisfy myself that the restriction of painting an engraving to stone plaquettes was a real choice and not one determined by a lack of other raw materials. Fortunately, I found among the bones I was studying one and only one bone with an engraved design (Aparicio 1981) demonstrating that the people of Parpalló had a choice of context for production of their information, and exercised it in a very biased way (Figure 4). The original argument was produced in 1980, but, being wary, then as now, of entering the world of people who knew so much more than I about Upper Paleolithic art, I did not submit it for publication until 1986.

What I did not dare to do at that time, but do now, was to consider the implications of separating the distinct categories of "art" for the possibility of looking at a sequential history of such categories. I think that at the time I preferred to think of the unity of the Upper Paleolithic tradition in terms of an artistic tradition that lasted twice as long as the period since it was last produced. As a result of my wider reading, I am, now, absolutely sympathetic to the need to consider it as several traditions as Conkey has repeatedly entrained us to do. But I think it is also valuable to think of it as an evolving tradition or traditions that has or have the capacity to reveal regularities, not just western European particularities, about the evolution of human behavior. It is not the first time such a claim has been made, of course, though usually it has been made from a Eurocentric point of view. I am arguing, rather, from a point of view that regards Europe as a rather isolated little peninsula far away from most of the scenes of most of the major events of the prehistoric period. That does not mean that people in western Europe were not subject to the same sorts of evolutionary pressures as other evolving humans elsewhere in the world. It is my argument that the fine detail of the story can be told from the massively revealed archeological record of western Europe because it is confirmed by the record of Australian prehistory, as described by Rosenfeld (1993), together with a perspective on the early Australian evidence recently published by Noble and myself (Davidson & Noble 1992a).

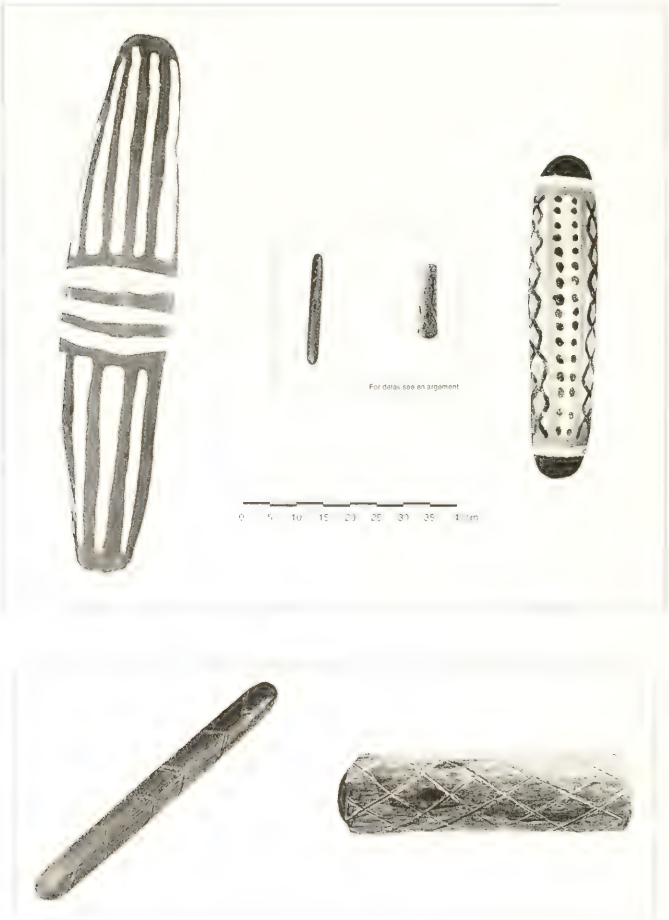


FIGURE 3. Shields and message sticks from Queensland

FIGURE 4. Engraved bone from Parpalló, found during Davidson's analysis of fauna

The Australian Sequence

Reviewing the evidence for the emergence of rock art in Australia, Rosenfeld discusses the sites which have been radiocarbon dated, indirectly or directly, those "dated" by measurement of cation ratios and claims for dating on the grounds of content, particularly through the claim that there are representations of the extinct megafauna. Rock engravings from the "Early Man" site, also in Cape York (Figure 5), were covered by deposits certainly dated at 13 kyr and possibly 15 kyr (Rosenfeld 1981); carbonate within a complex varnish covering engravings at Sturt's Meadow, in western New South Wales (Dragovich 1986), dates to around 10 kyr; pigment from hand stencils in Judd's Cavern, Tasmania has been dated by AMS to just less than 11 kyr (Loy *et al.* 1990); in addition, Morwood (Morwood *et al.* 1995, 79) found an engraved fragment of the rock of the shelter in deposits at Sandy Creek 1, in Cape York, dated at 14 kyr. The claimed early dates by cation ratios depend on a local calibration which Watchman (1992; this volume) has found to be problematical. Accelerator Mass Spectrometer dating at Gnatalia Creek and Laurie Creek may both involve inclusion of older oxalates into the dated pigment samples (McDonald *et al.* 1990). There is uncertainty about the meaning of the date of 20 kyr obtained from a rock fragment with an apparently artificial red coloring at Laurie Creek (Loy 1994, Loy *et al.* 1990, Nelson 1993). Dating by apparent depiction of megafauna (*e.g.*, Murray & Chaloupka 1984) involves a series of unwarrantable assumptions about the "accuracy" of representation, the form of animals which are now extinct, and the age of that extinction. Rosenfeld concludes that the "earliest solid evidence for structured visual systems on rock date to the terminal Pleistocene – early Holocene." Possibly earlier are the "finger-flutings" at Koonalda Cave, but the date of 20 kyr here comes from charcoal found on the floor of the cave below the engravings, which could result from a visit earlier than the engravings, especially given the later dates attributed to apparently similar markings elsewhere in southern Australia (Maynard & Edwards 1971; Rosenfeld 1993). Rosenfeld also raises the possibility that these markings should be "considered to belong to a system of meanings distinct from referential symbols" just as has been argued for hand stencils. Watchman (Cole *et al.* 1995:156) has recently announced AMS dates for gypsum crusts at Sandy Creek 2, in Cape York.

The lowest layer of these crusts contains hematite and in one of the crusts a date of 24 kyr was obtained. These crusts do not cover any recognizable painting, and therefore are not direct dates of *painting*. There is a possibility that the hematite was not involved in symbolic marking of the rocks.

This skeptical and rigorous assessment of the chronology of Australian PEDS suggests that the phenomenon emerged rather late (perhaps no earlier than 13 kyr) by comparison with our expectations from the standard story of the emergence of "art" elsewhere in the world. Symbolically complex statuettes are dated to 32 kyr in Swabia (Hahn 1986); there are painted plaquettes from Namibia at 26 kyr (Lewis-Williams 1983; Wendt 1974); the Parpalló plaquettes are at least 20 kyr (Davidson 1974), and there are direct AMS dates of cave walls with applied paint discussed below (Figure 5). Yet Australia was first colonized earlier than 50 kyr (Roberts *et al.* 1990; but see Davidson & Noble 1992b) and, we have argued, the abilities which make possible the production of "art" were necessary to build the boat and conceive the voyage that brought people to Australia (Davidson & Noble 1992a). One conclusion might be that we are being too rigorous in the standards of acceptable dating of Australian rock paintings and engravings especially in terms of a view that the necessary abilities

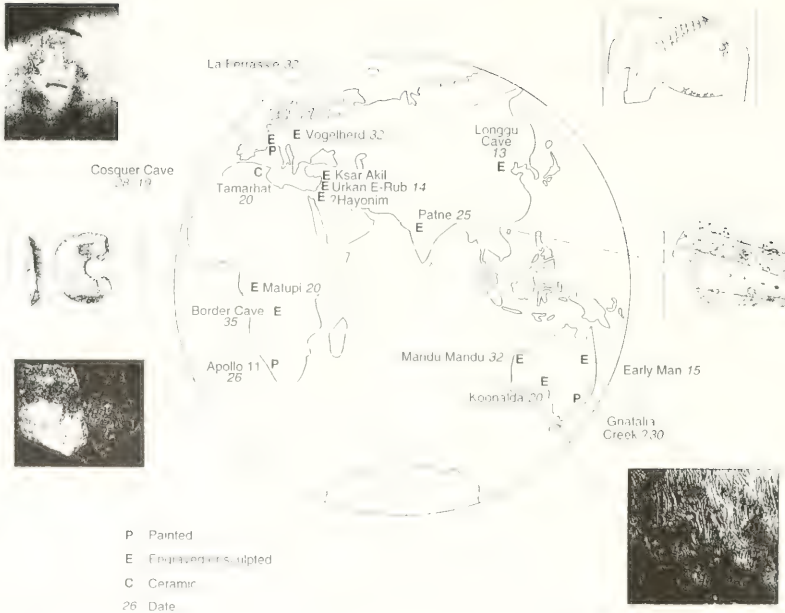


FIGURE 5. Map of early "art" sites around the world (those not discussed in the text are taken from Bahn (1991), showing dates and figures

were present among the first Australians. But arguments cannot be based on wishful thinking.

Davidson and Noble (1992a) sought to assemble the evidence from Australia that artifacts with "imposed form" were widespread early, among artifact assemblages that are not characterized by large numbers of "types." Ground edged axes and ground bone points appear very early in the Australian sequence. In addition there are other traces of evidence which imply symbolic marking, but not marking of places. The earliest evidence in Australia, dated by thermoluminescence at more than 50 thousand years ago, is accompanied at two sites by lumps of ocher with ground facets. This repetitive patterning in sites only a few kilometers apart distinguishes these ocher discoveries from most earlier claims in the world. Yet there is no plausible case for rock painting at this time. Added to this is the existence in Mandu Mandu of a series of pierced shells from a layer with radiocarbon dates of 34 kyr and 30 kyr (Figure 6). These give every sign of having been strung, and should probably be considered as personal ornaments (Morse 1993). Once we have opened up the possibility of personal ornaments, the ground ocher from Malakunanja and Nauwalabila seems plausibly interpretable as a sign of body painting. Some confirmation that such attention was paid to bodies relatively early in the Lake Mungo III burial, estimated to be dated between 30 kyr and 28 kyr (radiocarbon ages) (but actually undated), which is surrounded by ocher staining (Bowler & Thorne 1976). In addition there is a bead from Devil's Lair dated between 19 kyr and 17 kyr (radiocarbon ages) (see references in Davidson & Noble 1992a) (Figure 6).

Rosenfeld (1993) concludes:

> [T]he use of a referential system of symbols to mark the landscape according to a corporate system of meanings appears to have its origins during the period of rapidly changing environmental conditions of the terminal Pleistocene. ... [T]he integration of features of the landscape into a corporate symbolic system is entirely consistent with a model of tightened social and territorial organization at the end of the Pleistocene. Corporate territorial expression through the indelible marking of place with a stylistic graphic system may have been a powerful means of asserting corporate rights and relationships.

If we accept that an argument can be sustained for such corporate territoriality in the Late Pleistocene, it must be pointed out that such a corporate social organization is an identity that needs to be established and which could only exist with some form of marker of the identity of one rather than the other corporation. Such marking may require the personal marking or decoration of individuals. There would, therefore, be an evolutionary scenario accounting for the apparent sequence from personal ornamentation to the marking of places.

The Upper Paleolithic Standard?

The proposition I am putting here is that the sequence of events in the Upper Paleolithic of Europe was similar to that in Australia, though replete with additional detail. We can see that personal ornamentation is earlier in the surviving evidence than the marking of places. I suggest that personal ornamentation is the key to understanding the process of change in the "art" of the Upper Paleolithic and in Australia. Hence, we identify a process which may be best explained as an evolutionary one. That is not to say that there was an inevitability of the "progress" from personal decoration to the painting of caves. We are considering, rather, that in both continents the newly arrived humans had only recently discovered language and its symbolic properties. In this context, they then discovered personal decoration. The options that opened up

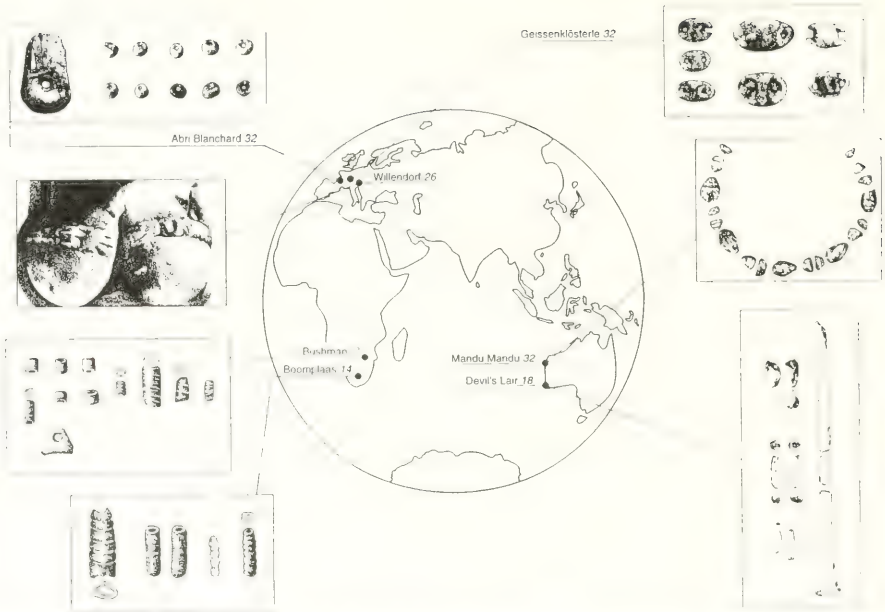


FIG. 11.6. Beads and other objects of personal decoration from earlier than 30 kyr in Australia (Dortch 1984) and (Morse 1993), Swabia (Hahn 1972), the Vezere (White 1989; White 1993). Also shown are more recent examples from Austria (Marshack 1991) and South Africa (Wadley 1993)

led, in one direction, to symbolic marking of places. We do not have time, here, to do more than foreshadow the options that opened up in the other direction. Evolutionary processes of natural selection apply to the emergence of "art," and it is fundamental to such an argument involving selection, that there existed options other than those we are considering here. The consequences of pursuing those options were different, and, in the end, those who chose them overwhelmed those who did not (Davidson 1989b).

Sequential Categories in the Upper Paleolithic

I will consider the sequential evidence from the Upper Paleolithic for personal decoration and conventionalized arbitrariness; the visibility of early symbolism; the use of symbolism in social networks; plaquettes, power and restriction; and cave art. I regard the decorated objects of the end of the Pleistocene as possibly involving "mere" decoration, but I will not develop the argument here.

Personal Decoration and Conventionalized Arbitrariness. The Upper Paleolithic evidence is well known, and now that AMS dating of pigments is becoming an acceptable technique the details of the chronology are becoming clearer, though caution is clearly necessary (Clottes in press).

I have previously dismissed much of the evidence, except the Tata tooth, claimed to show symbolic material from earlier than the Upper Paleolithic (Davidson 1990, 1991a). If we accept this, then the earliest evidence for something symbolic in Europe is represented by the beads and pierced canines of both Swabia and South western France (*e.g.*, Hahn 1972, 1986; White 1989) with dates between 36 kyr and 30 kyr, but conventionally assigned a date of about 32 kyr (Figure 6).

The evidence that personal decoration was an important feature of the earliest symbolic marking gains intriguing confirmation from examination of the bone and ivory sculptures from Swabia (Hahn 1986). Here, the statuettes from Vogelherd, Geissenklosterle and Hohlenstein Stadel all have distinctive marking on them which suggests a repeated patterning involving something other than representation (Figure 7). The important point here is that the "meaning" of this marking, or of the patterning in this marking, requires a convention of understanding. It requires it for us, but crucially we can infer that the makers had a convention, though we cannot say what the meaning of it was. Noble and I have frequently referred to the significance of this observation as a demonstration that a quite different *order* of communication had emerged by 32 kyr.

The situation in southwest France is not quite so neat, for, although many claims have been made about the most distinctively marked objects of the Early Upper Paleolithic there (Bahn 1986; Delluc & Delluc 1978), no one has claimed that the so-called "vulvas" engraved on stone blocks from seven sites in the Vézère region are or represent personal decoration. But for our purposes we note that there was plenty of evidence that personal decoration was going on, with the manufacture of beads through the piercing of canines and other means (*e.g.*, White 1989; this volume). At the same time, the engraved blocks from La Ferrassie and the other six Vézère sites are marked in ways that, like the Swabian statuettes, implies convention. The marks which have caused most discussion, the so-called "vulvas," might better be called "enclosed grooves" to avoid the suggestion that they are or were representational. The essence of the issue is that there are blocks from seven sites roughly contemporary with each other marked by "enclosed grooves" and that there is no agreement on what, if anything, is represented by the "enclosed grooves" (Figure 8). Just as with the

markings on the Swabian statuettes, there is an element of conventionalized arbitrariness here which is strongly reminiscent of the distinctive difference between language and other forms of communication. This is unsurprising given the conceptual complexity of the Hohlenstein Stadel figure, which seems to combine a feline head, a human body (that lacks sexual characteristics) with coded decoration on the arms. This complexity seems to suggest the possibility that we must acknowledge the presence of language somewhere unknown earlier than 32 kyr. The Swabian and Vézère evidence is nevertheless the earliest unequivocal evidence so far discovered for the conventionalized packaging of arbitrariness in this way.

The Visibility of Early Symbolism? Two arguments follow from these observations. First, language seems likely to have emerged earlier than the first signs of it in Europe, a position confirmed by the Australian evidence as we have argued at length

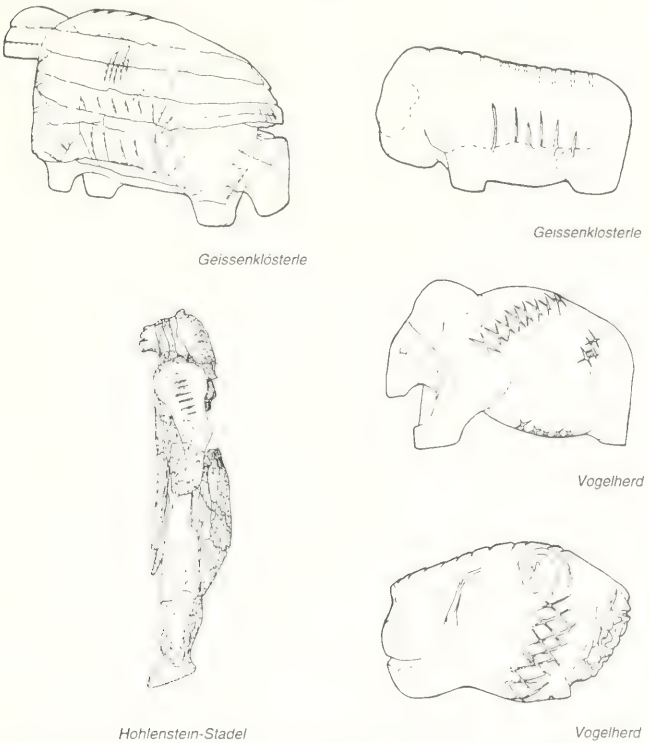


FIGURE 7. Statuettes from Swabia showing "personal" markings. From Albrecht *et al.* (1989)

elsewhere (Davidson & Noble 1992a). Secondly, the earliest language and hence symbolism may have left no material trace. This second is something we must deal with, as it involves a point of view that is distressingly widespread and is in the order of a religious statement: It is a statement of belief about the way the prehistoric world was for which there is no evidence. Acceptance of this belief institutionalizes ignorance about the world because it discourages attempts to understand the world. The early symbolism belief depends on taphonomic argument that all evidence earlier than that we have found has now been destroyed. I may be an old fashioned empiricist, but I believe that the best way to approach the world is through the assertion that "the best evidence we've got is the evidence we've got."

In the study of evolutionary processes, particularly those concerned with processes of first emergence or "origins," the very nature of an origin presents problems of interpretation. Before the origin in question some feature was absent, and after that origin, the feature was present. An emergence or origin necessarily involves the first appearance of a behavior which previously was not manifest. Thus the change from an absence to a presence of evidence can be crucial to the understanding of the process we are studying. The problem is how to interpret absence of evidence, since the sources of knowledge do not preserve all of the relevant evidence. Evidence may be absent for no other reason than that the archaeological record is imperfect, what we may call *taphonomic imperfection*; that is, an imperfection due to the processes of destruction resulting from the burial of material evidence of behavior. Evidence may also be absent because the behavior, and hence its material manifestations, was absent. If we accept that taphonomic imperfection accounts for the absence of evidence, then we are unable to distinguish between the time before emergence and the time after it. And no new evidence can make any difference to this state of affairs. Suppose we postulated an origin of symbolism as the behavior which made the difference between the earliest ancestors of humans and those of chimpanzees. We would have to choose to account for the lack of evidence for this hypothesis as due to the lack of material consequences of symbolism combined with the taphonomic effects on such evidence as was originally produced. If, however, we accept that, properly considered, absence of evidence is evidence of absence, then new evidence can allow modification of our hypothesis. Chase and Dibble (1987:47) conclude that the appropriate scientific approach can be to accept the evidence of absence. This is the approach I have just advocated for the consideration of the Australian evidence.

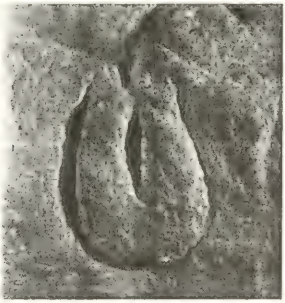
Duff, Clark and Chadderton (1992) adopt a seductive position in suggesting that such phenomena as symbolism can have no material expression, therefore the archaeological record is an inappropriate source of evidence for addressing the problem. We might be attracted to an argument which says, rather, that there are problems such as the origins of symbolism that should not be approached through the archaeological record, but Noble and I have been attempting to develop a theoretical understanding of the problems which allows us to understand the material consequences of the emergence of symbolism. One of the elements of this argument is the coherence of the interpretation of the sequence of events of Upper Paleolithic symbolism provided by the perspective that language was newly emerged in Europe at the beginning of that sequence.

Social Networks. Gamble has been one of the architects of our new vision of the significance of the symbolism of the Upper Paleolithic. Using an extended ethnographic analogy with the use of art and ceremony in harsh environments of Central Australia in recent times, Gamble (1982) argued that the stylistic similarity of many

Castenet

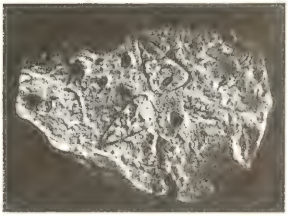
La Ferrassie

La Ferrassie



La Ferrassie

Poisson



La Ferrassie

FIGURE 8. "Enclosed groove" figures from the Vézère region, showing convention (courtesy of J.J. Clayet-Merle, Les Eyzies Museum)

of the so-called "Venus figurines" of northern, central and eastern Europe implied the existence of "open social networks" in the harsh periglacial environments of northern Europe around 26 thousand years ago (Figure 9).

Soffer (1987) has criticized this argument, claiming that female figures were more diverse and their chronology of occurrence less restricted than required by Gamble's

argument. Gamble (1991) has replied with a defense of the basic thrusts of his argument, and I am in general sympathy with it. As Soffer (1987) has shown, there are many prehistoric representations of female humans. Some of these have features in common, though there is diversity even then, while others have little in common other than that they represent human females. This wide diversity of figurines can be subdivided according to the objectives of the analysis, and the criteria of recognition of membership in one class or another.

What seems to me still unchallenged is that within the corpus of female figurines there is still a group depicting naked women in three dimensions with no faces and no feet. It no longer seems tenable that there is a single restricted time period, which may be as short as a couple of thousand years around 26 kyr, when there were few other ways of depicting women. The figurines from Central Europe seem to be dated about 28 kyr to 24 kyr, while those from the Russian Plain are later than this date. While interpretations of these dates are still open to discussion, there is some agreement that there was a shift of people from Central Europe to the Russian plain (Grigor'ev 1993; Soffer 1993).

Gamble's (1982) argument was couched in terms of the value of such symbols in constituting the open social networks that, by analogy with modern Australian Aborigines dwelling in hot deserts, would have been necessary for humans learning survival in the harsh arctic desert environments of Europe. I do not want to enter into the argument about whether such symbols do play a role in constituting social relations in this way, rather I want to point to the veracity of Gamble's claim for open social networks on the basis that there must have been a sufficient flow of information for the conventions of depiction to be held in common over such large regions.

Female figurines before 20 kyr had conventions about representation in common. These conventions may be, as Soffer (1987) claims, "superficial" and "not hold up to closer scrutiny," but they can be identified, and I would argue that the most important ones are not those that Soffer refers to as "emotionally charged," by which she presumably means the breasts and buttocks, so often commented on by (mostly male) archaeologists. While Gvozdover's (1989) analysis does show that the stylistic conventions of the Russian figurines is susceptible to much more detailed analysis, this does not deny the existence of a set of general conventions within which these styles were developed: The lack of faces and feet and the restriction of the depiction of sex to females. Gamble is not alone in recognizing the similarity in such conventions across Europe (Grigor'ev 1993), and, while the possibility of demographic shifts makes sense for eastern Europe, it is still far from clear how the conventions might have been shared between Central/Eastern Europe and the western region without some of the openness that I am supporting here.

There have been other claims for convention, most notably in the form of stone artifacts, especially Acheulean handaxes. We (Davidson & Noble 1993a) have argued, however, that these conventions derive from learned means of manufacture in a context where learning was primarily through observational learning and imitation rather than through the language of instruction. Indeed, it is arguable that in such learning repetitive patterning is an advantage. Moreover, even if we do not accept that argument, Dibble (1989) has shown that some of the regularity in Acheulean handaxe morphology is either an illusion created by typology, through the division of a continuous range of morphology into apparently discrete types, or an artifact of the method of metrical analysis, through the definition that the longest dimension of handaxes should always be named as the length. Such illusions and methodological fallacies do not define the conventions of the "Venus figurines." I would argue that the distribu-

Eliseevitchi

Avdeevo

Gagarino

Kostenki

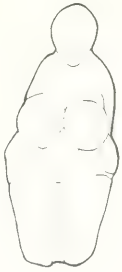
Willendorf

Vestonice

Moravany

Lespugue

Laussel



Grimaldi

Savignago

FIGURE 9. "Venus" figurines from Europe. From Delporte (1979)

tion of the common features of handaxes is so wide in space and time that we are dealing not with a conventional limitation on arbitrariness, but a situation where arbitrariness hardly existed. We might be dealing with species-specific inability to choose rather than culturally confined choices.

In the female figurines the general conventions are so precise that there is no doubt for most of the figurines that we can say that there were no faces. This is not the partitioning of continuous variation, but the straightforward identification of a convention, however superficial. Feet are a bit more of a problem, as some are broken, but where the ends of the legs survive, the feet are either absent or rudimentary. Bear in mind that the earlier statuette from Hohlenstein Stadel had both facial features and feet, while some of the other Swabian figures have faces and others do not. Moreover, the vast majority of the figurines are female. As Conroy (1993) has pointed out the significant opposition is between female figurines and figurines with no representation of sex. These conventions *were* held in common over the region from the Atlantic to the Don, north of the Mediterranean and the Alps, and rather restricted to a short period before 20 kyr. The wide, but not unlimited, distribution of these conventions contrasts with the rather restricted distribution of the conventions of the Swabian statuettes and the Dordogne enclosed grooves, though not for the items of personal decoration.

In the matter of personal decoration, the female figurines in question are also revealing. The most famous of all, the Willendorf figure, has highly distinctive patterning on the head, usually interpreted as decoration. But the figurine also has clear, though indistinct, markings on the wrists which I take to be indications of bracelets. Marshack's (1991) photograph shows that this is in the form of a zigzag (Figure 6).

And she is not alone. One of the essences of Soffer's argument against Gamble is that Gvozdover's analysis of the Russian figurines shows "patterning in body decoration" which is "duplicated in other media" (Gvozdover 1989). This sounds very much like the situation described by Wiessner (1989) for the uses of style in modern societies. People, she asserts, use style to show their membership within a group associated with the style, but seek to signal to other group members their separate identities within the group through variations in the style. Wobst (1977) also wrote about the way in which different aspects of style could be used to convey messages about group affiliation and individuality. Wobst used as his examples the now tragic circumstances of the uses of hats for identification in Sarajevo (Wobst 1977: 333): "the Bazaar of Sarajevo sports a large section of hatmakers in residence. The city is known for the intense competition among its Serbian, Croatian and Muslim inhabitants." Historical irony aside, the point is that personal decoration can serve as a marker of group identification.

We can, of course, only guess what sorts of divisions of society and types of identity might have been signaled by the varieties of decoration on the figurines. But we should be cautious about the types of division or identity that might have been present at this time. Conroy's (1993) argument suggests that the representation of female sex of figurines might best be interpreted as the marker of the existence of *gender* in these societies. We can all acknowledge that both male and female persons existed, the restriction of the sex of the image to one of these classes might seem to be an indication that sex roles were now socially defined – that is to say gendered. The argument is strengthened by the observation that in addition to the female figurines there are others in which sex is not depicted at all. What seems to be being observed in some part of the convention is a gendered opposition between female and other rather than one which might be mere representation of the sexes female and male, and in the same

way as other artistic systems routinely represent humans as either male, female *or* without sex (see Davidson 1991b). This, it seems to me, destroys Soffer's dismissal of this convention as "superficial." On the contrary, the convention turns out to reveal a subtlety of social classification never observed in earlier material. I cannot say whether this meets Gamble's (1991) "challenge of explaining why the figurines were female," though I suspect it does.

At this stage, then, we can summarize the two parts of the sequence we have analyzed as showing that personal decoration was an early part of the complex of symbolic representation in the Upper Paleolithic of Europe. This was the case in at least two regions where different symbolic expressions occurred. Later evidence suggests that decoration formed a means of identifying partitions within a widespread tradition of a segmented social organization. But we could perhaps argue that identification is of people rather than places. This is quite consistent with the argument I mentioned at the start, that among people who have acquired language relatively recently (on an evolutionary time-scale), there would be selective advantages to the development of means of identifying group membership.

Plaquettes, Power and Restriction. I have already indicated the nature of the argument I produced on a previous occasion (Davidson 1989a) about the production of pictures by painting and/or engraving on stone plaquettes. As opposed to the conventions indicated by the female figurines before 20 kyr, the plaquettes (mostly after 20 kyr) indicate, by the restriction of information to one particular context at a restricted number of sites, that access to information may have been controlled. The practice can be dated at Parpalló to 22 kyr, and at probably the same date at Isturitz. By the time of the glacial maximum the practice had spread to the Dordogne-Vézère region. About 15-13 kyr it had spread to several other centers, the Central Pyrenees, Cantabria, and northern France. At the end of the glacial period perhaps only Isturitz, and Gönnersdorf, in western Germany, remained, though the upper levels at Parpalló were badly disturbed, and Enlène might also belong to this final phase.

Unlike the earliest phase of European symbolism, this cannot be interpreted as resulting from independent local traditions. The argument that the practices involving plaquettes entailed restricted access to information requires common practices in regions with separate centers of access to information. The pattern of segmentation of social organization and the structuring of networks was quite different from that associated with the earlier female figurines. The situation corresponds, in fact, to the process of "intensive negotiation" that Gamble (1991) attributes to the phase of "Closed Paleolithic Refugia" between 21 kyr and 13 kyr. But it is a situation that perhaps required an earlier stage of open social networks (as well as some "talking across the fence," as with all territorial boundary maintenance) for it to be achieved as a widespread phenomenon.

There is a further implication of this interpretation. If there is any force at all to the argument that painting and/or engraving on plaquettes was used in a context of dissemination *and* restriction of access to information, there is a necessary corollary that what was involved concerned association of people from a wide area with a "center" such as Parpalló. This argument is rather akin to Conkey's discussion of aggregation sites (Conkey 1980), in which people from different parts of Cantabria had a common focus at Altamira. The most important implication of these arguments is that there was some level of common ideology and identification among the people using quite extensive regions. Within this extensive region, there were smaller regions with relatively closed communication networks. Moreover, Soffer's description (this volume)

of the regional elaboration of symbolic expression arising out of the "Venus" figurine tradition in the East but not the West suggests that there were limits to the region of common conventions.

From the perspective that is provided by viewing the changes as working out the evolutionary consequences of a late language emergence in Europe, these three stages can be seen as a three part sequence.

1) The first language users in Europe discovered (or indeed brought with them) means of defining personal identity, as the earliest Australians did.
2) As open social networks emerged, for whatever reason and by whatever means, so too did gender identification and possibly other social partitioning which was accompanied by distinctive visual marking through personal decorations.
3) This situation gave way to one where social structure involved more control of access to information, involving a limitation of the use of space through control at the center, integrated by a collective ideology at some level.

Cave Art. Thus far my argument has hardly mentioned the most famous manifestation of Upper Paleolithic "art," the painted and engraved caves. The reason is straightforwardly chronological. The major part of this phenomenon may be later in date than the Swabian statuettes, the Vézère blocks, the female figurines and the emergence of plaquette power. This claim needs some justification, and we can predict that it will be tested to the full in the next few years as AMS dates for pigments become more routine and more reliable. While this paper was in press, Grotte Chauvet was discovered, published (Chauvet *et al.* 1995) and direct and indirect AMS dates were obtained (Clottes *et al.* 1995). The AMS dates for these paintings may be older than any previously reported for painted depictions. As no details of the samples have been published (yet), we cannot assess them, but note that other recent work has shown the complex organic environment of prehistoric paints which may lead to inaccuracies even in direct AMS dates (Ridges 1995).

The difficulties of dating Upper Paleolithic paintings have been well summarized by Valladas and colleagues (1992). In particular the results reported in that paper confirm what most of us have long known: that stylistic dating is too imprecise to be of much value. Dates from paintings of the "same" style were produced thousands of years apart. The dates for Grotte Chauvet estimated from stylistic considerations may be as much as 10 thousand years later than the AMS dates. In addition, indirect dates of materials derived from human activity in the cave but not from the painting itself are also imprecise. Painted caves were used and visited before and after the date of the paintings. As a result, the dates for paintings in several painted caves are rather later in date than might have been expected (see Table 1) while others were earlier.

The implications of these are too many to discuss here. I limit myself to two observations. First, it would be tempting to relate the pattern of distinct use of regions that I have suggested can be derived from the understanding of plaquette power to the very closely related divisions of regions revealed by Jochim's (1983) analysis of the chronological and spatial distribution of painted caves. But part of the patterning revealed in Jochim's analysis derived from the use of Leroi-Gourhan's (1965) definitions of four styles of the paintings. I have always preferred to avoid arguments based on this stylistic classification. The new evidence suggests that that caution is well placed, and that it would be premature to change that preference.

Secondly, it has long been an argument that the earliest figures in Upper Paleolithic Cave Art are the hand stencils, including those from Gargas. This seems to be confirmed by the early dates from Cosquer Cave (Clottes & Courtin 1994). The pro-

Table 1. AMS dates for Upper Paleolithic figures

Site	Date	Lab no	Figure	Reference
Cougnac	14 300 ± 180	Gif A 89250	Dot	Lorblanchet *et al.* 1990
	13 810 ± 210	Gif A 92500	Dot	Clottes in press
	23 615 ± 351	Gif A 91183	Male *Megaceros*	Clottes in press
	22 750 ± 390	Gif A 92426	Male *Megaceros*	Clottes in press
	19 498 ± 267	Gif A 91324	Female *Megaceros*	Clottes in press
	25 120 ± 390	Gif A 92425	Female *Megaceros*	Clottes in press
Altamira	13 570 ± 190	Gif A 91 178	Bison	Valladas *et al.* 1992
	14 410 ± 200	Gif A 91 249		Valladas *et al.* 1992
	13 940 ± 170	Gif A 91 179	Bison	Valladas *et al.* 1992
	14 710 ± 200	Gif A 91 254		Valladas *et al.* 1992
	14 330 ± 190	Gif A 91 181	Bison	Valladas *et al.* 1992
	14 250 ± 180	Gif A 91 330		Valladas *et al.* 1992
	13 060 ± 200	Gif A 91 004		Valladas *et al.* 1992
	12 190 ± 180	Gif A 91 172		Valladas *et al.* 1992
Castillo	13 060 ± 200	Gif A 91004	Bison	Valladas *et al.* 1992
	12 910 ± 180	Gif A 91172	Bison	Valladas *et al.* 1992
Niaux	12 890 ± 160	Gif A 91 319	Bison	Valladas *et al.* 1992
	12 440 ± 190	Gif A 91 173		Valladas *et al.* 1992
	13 060 ± 200	Gif A 92499	Line	Valladas *et al.* 1992
	13 850 ± 150	Gif A 92501	Bison	Valladas *et al.* 1992
Cosquer	27 110 ± 390	Gif A 92 409	Hand stencil	Clottes *et al.* 1992
	27 110 ± 350	Gif A 92 491	Hand stencil	Clottes *et al.* 1992
	19 200 ± 220	Gif A 92 418	Feline head	Clottes *et al.* 1992
	18 820 ± 310	Gif A 92 417	Horse	Clottes *et al.* 1992
	18 840 ± 240	Gif A 92 416	Horse	Clottes *et al.* 1992
	18 010 ± 190	Gif A 92 419	Bison	Clottes *et al.* 1992
	18 530 ± 180	Gif A 92 492	Bison	Clottes *et al.* 1992
Le Portel	12,180 ± 125	AA-9465	Horse	Igler *et al.* 1994
	11,600 ± 150	AA-9766	Horse	Igler *et al.* 1994
	24,640 ± 390	Gif A 95 357	Horse	Lorblanchet *et al.* 1995
	30,940 ± 610	Gif A 95 126	Rhino 1	Clottes *et al.* 1995
	30,790 ± 600	Gif A 95 133	Rhino 2	Clottes *et al.* 1995
	32,410 ± 720	Gif A 95 132	Rhino 2	Clottes *et al.* 1995
	30,340 ± 570	Gif A 95 128	Bison	Clottes *et al.* 1995

duction of hand stencils is one of the truly universal features of human behavior, produced all over the world and at almost all times since there have been humans. Yet, I venture to suggest that none of us knows why people put stencils of hands on surfaces. And I do not believe that we can ignore the significance of our ignorance. For those marking the walls of Gargas and Cosquer Cave with hand stencils a "meaning" may have been clear, but it would not have been so to any other person who was not a witness to that act, any more than it is to us. To be sure, marking the walls inside caves indicates to another person venturing into the darkness of the cave equipped with adequate lighting and paying attention to the walls of the cave rather than the floor, that *someone* else has been there, but I do not think that it can be said to do much more. It may have been enough.

But these two examples, together with my own work with the plaquettes suggests a, not highly original, view that cave paintings may have been involved in "territorial adjustments." It has always been a mystery to me how these may have worked. A recent review (Gosling 1982) of the use of scent marking in the territories of nonhuman animals provides a valuable synthesis of the sorts of argument about the function of territorial markers. This is not the place to summarize these arguments. Suffice it to say that ethologists have now gone a long way beyond the view that territorial markers are concerned primarily with defense or advertisement. This can only be liberating in the study of Paleolithic Cave Art, as it has always seemed implausible that paint-

ings hidden out of sight deep in caves could possibly be concerned with defense or advertisement of territory.

It seems more likely that such paintings could only be involved with territory if, in some way, the important point was that the paintings enabled people to identify some aspect of the painters. Gosling (1982) argues that scent marking allows owners to be identified. On this evidence, it should not be necessary for people to use cultural markers of their identity, since other animals are adapted to identify sufficient information about each other by means of the distinctive emissions from their bodies. At the beginning of this paper, I referred to an argument that Noble and I have developed (Davidson & Noble 1992a; Noble & Davidson 1993a), in which the arbitrariness involved in language as distinct from other communication systems results in the accidental or deliberate utterance of untrustworthy communications. In this context, given that there are physical limits on the numbers of individuals with whom one can communicate on a regular basis, identification of individuals with whom conventions on the limits to arbitrariness are shared is an essential requirement for efficient communication through language. It may be that visual cues provide a more rapid identification than cues based on distinctive patterns of speech. Thus, we might expect that individual identification through personal decoration might be a feature of human groups early in the history of emergence of language. The significance of this can only be identified by a full understanding of the process of Upper Paleolithic "art."

Summary of the Process of Emergence of Upper Paleolithic *Art*

The evidence I have discussed seems to show that, within a time period which was short relative to the period of distinctiveness of hominids, in two very separate parts of the world humans invented means of marking individuals. In the European case, the sequence of events that followed seems to suggest that identification by this means played a role in identifying segments of society when open social networks presumably made mobility between groups more frequent. Subsequently there was an emergence and spread of more closed social networks, which, from the manner in which we have identified them, seem to have involved the establishment of association between people and some form of center of their world. We might, to use the expression used by Rosenfeld about Australia, envisage this as the beginnings of some form of corporate identity of groups. Following from this, the marking of places through symbols painted and engraved on cave walls might be involved with the identification of the manner of corporate ownership of territories.

The evidence is more fragmentary in Australia than in Europe, but the two ends of the sequence are clear. At the start there is personal marking, at the end there is marking of places. The European evidence suggests that the two ends may have been connected by a complex process of working out the corporate identity of groups and their relations to places. Is the pattern repeated elsewhere?

Pattern of Process in Other Regions?

I would have hoped to compare the sequence of events with that in other regions, beginning with Southern Africa. I was disappointed that Lewis-Williams' argument (Lewis-Williams & Dowson 1988) about altered states of consciousness and the "origins of art" was not framed in terms of the earliest South African evidence. My limited understanding of South Africa suggests that the evidence for the earliest "art" is cur-

rently even more fragmented than that of Australia, but certainly involved the early appearance of artifacts with imposed form, and an early appearance of paintings on plaquettes. Painting and engraving of places such as caves and rock shelters seems to be later. Wadley (1993) has summarized the evidence from the Later Stone Age of South Africa, and shows that there is indeed a case for the early appearance of personal ornamentation and the much later appearance of marking of places (Figure 6). There is even a hint that plaquettes were used in between, though the evidence is so fragmentary that it cannot be regarded as sufficient confirmation of the hypothesis.

There is some hint that, appropriately addressed, the evidence from southern Africa might yield a sequence compatible with the scenario I am suggesting developed in Europe and Australia as people, newly endowed with language, gradually evolved means of dealing with the creativity it provided. The same cannot be said for many other regions of the world, but some of this may be due to more fragmentary attention to the relevant archeological record.

The region where it cannot be said that attention to the archeological record has been fragmentary is the East Mediterranean. Yet here there is little sign that the outlined sequence can be identified, largely due to the lack of evidence of marking places. There may be some sign of decoration, and one or two hints of something akin to plaquettes, but no cave or shelter art or similar marking of place until artificially constructed places begin to be so marked in the Neolithic. Bar-Yosef has summarized the evidence (or lack of it) in this volume.

I have suggested previously that we should take seriously the possibility that it is no coincidence that in the east Mediterranean the Late Pleistocene archaeology is bereft of signs of symbolism and at the end of the Pleistocene agriculture emerged, while in the west the Late Pleistocene archaeology is full of signs of symbolism and agriculture was only introduced after it emerged in the east (Davidson 1989b). This is not the time or the place to elaborate that argument (Figure 10). Nevertheless, this view of the sequence in Australia and Europe involves the working out by the first people in those continents of what may be interpreted as a collective appropriation of nature (*cf.* Ingold 1980). In failing to work out this ideological position or choosing not to, people in other parts of the world may have left themselves free to develop more individualized attitudes to appropriation, leading to the ideologies of agriculture.

One difficulty for this argument is the independent invention of agriculture in the Americas. Whilst not ruling out some similar argument, the hypothesis that the Americas were colonized late might suggest that the relationships being described here were already worked out before the colonization. Thus the nature of the processes involved in the differentiation of fisher-gatherer-hunter and agricultural ways of life might have been quite different from those of the Old World.

Conclusion

I suggest that there is a case for a common sequence of Late Pleistocene evolutionary change in the manner of use of symbols in two separate continents, Australia and Europe, and a possibility in a third, southern Africa. There are some regions, notably southwest Asia, where, despite the detail of the archaeological record this sequence does not seem to have occurred. The Upper Paleolithic cannot, therefore, be taken as the standard but there is comparable patterning in some other parts of the world of the Late Pleistocene I have identified a common thread in the sequence of changes in Up-

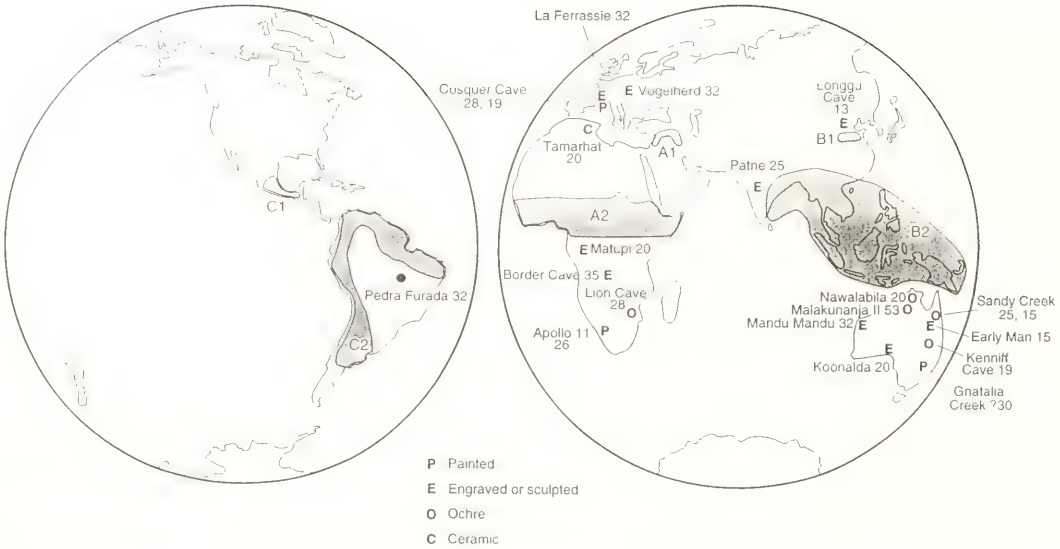


FIGURE 10 Map of early "art" sites (those not discussed in the text are taken from [Bahn 1991]) in relation to the centers and "noncenters" of agricultural origin defined by Harlan (1967).

per Paleolithic art and in Australian prehistoric art that enables us to understand the significance of both in the evolution of human behavior. I suggest it tends to confirm the case Noble and I have made for a late language origin.

There is no inevitability to the sequence of evolutionary change in artistic systems. Symbolism was part and parcel of turning communication into language, but the use of symbols separate from language could only have been a product of language. Since the essence of symbols and language is conventionally defined arbitrariness, the productivity and creativity we associate with humans is very much a product of language. Because of this the pattern of symbol production need not have patterning to it from one region to another. And yet, I suggest, it does. The limit may turn out (I do not claim that the argument is complete yet) to have something to do with the limited options in the appropriation of nature that distinguish fisher-gatherer-hunters with collective appropriation from agriculturalists and pastoralists with individual appropriation (Ingold 1980). If I am right, then we should expect that the Upper Paleolithic pattern would be repeated in other regions of the world populated by fisher-gatherer-hunters with collective appropriation of nature, and different patterns would be found in those regions where agriculture emerged independently.

On this view we see the grandest vision of what we can make this art mean. In such an evolutionary argument it signifies the way humans first worked out their relations with land and with each other once they had discovered language. It means the opposition between fisher-gatherer-hunters and agriculturalists and thus it means the largest themes of human history: the conflict between different ways of life and dispossession through colonization. The influence of this, I suggest, was more fundamental than that of Pheidias, Leonardo, Shakespeare or Beethoven.

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Symbolic Expressions in Later Prehistory of the Levant: Why are They So Few?

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This chapter brings together evidence for symbolic behavior from the Levant, a well defined region within the Near East that encompasses the area from southeast Turkey to the southern tip of the Sinai peninsula (Egypt) (Figure 1). Occasionally, I refer to the broader region and include some information from Anatolia. The chronological sequence (Figure 2) described and discussed in the following pages lasts from *ca.* 45,000 to *ca.* 8,000 BP (all radiocarbon dates cited in this chapter are in uncalibrated years BP). While discussing some of the potential interpretations of these artistic expressions, I focus on the question of why, in spite of the continuous occupation of this area during the Upper Paleolithic and early Epipaleolithic periods, the number of art objects is relatively so small. They became more abundant during the late Epipaleolithic and especially the Early Neolithic.

Before delving into the records from the Near East, it is worth reiterating the notion that many meaningful, informative human activities leave no archaeological record. This is true for public ceremonies and private rituals. Nor are there oral traditions in the Near East that go beyond the mid-Holocene. Thus, nothing is left in the archaeological record from cultures in which activities such as dancing, for example, were a major way of individual and/or communal expression. Public areas that may have been used for communal activities, however, were identified in Neolithic sites such as Çayönü where an open space situated between the largest domestic dwellings and next to public houses was called the 'plaza' (Özdogan & Özdogan 1989).

Decomposition is the main enemy of prehistoric art. Human expressions on perishables such as hides, early twined cloths, and basketry are not preserved. Even frescoes painted on the walls of houses and sacred buildings in later periods such as the Neolithic or the Chalcolithic (10,000- 5,500 BP), are rarely preserved. The rare examples from Neolithic Çatal Hüyük (in Anatolia) or Chalcolithic Tuleilat el Ghassul (in

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the Jordan Valley) indicate the amount of artistic expression lost forever in all other excavated sites (Mellaart 1967, 1975).

There are only isolated reports and partial reviews of symbolic expressions of Paleolithic and Epipaleolithic items in the Near East (*e.g.*, Garrod and Bate 1937; Neuville 1951; Anati 1968, 1972; Cauvin 1972, 1994; Solecki 1980; Belfer-Cohen & Bar-Yosef 1981; Bar-Yosef & Belfer-Cohen 1988; Goren-Inbar 1986, 1990; Hovers 1990; Bahn 1991; Belfer-Cohen 1988, 1991a, b; Belfer-Cohen & Hovers 1992;

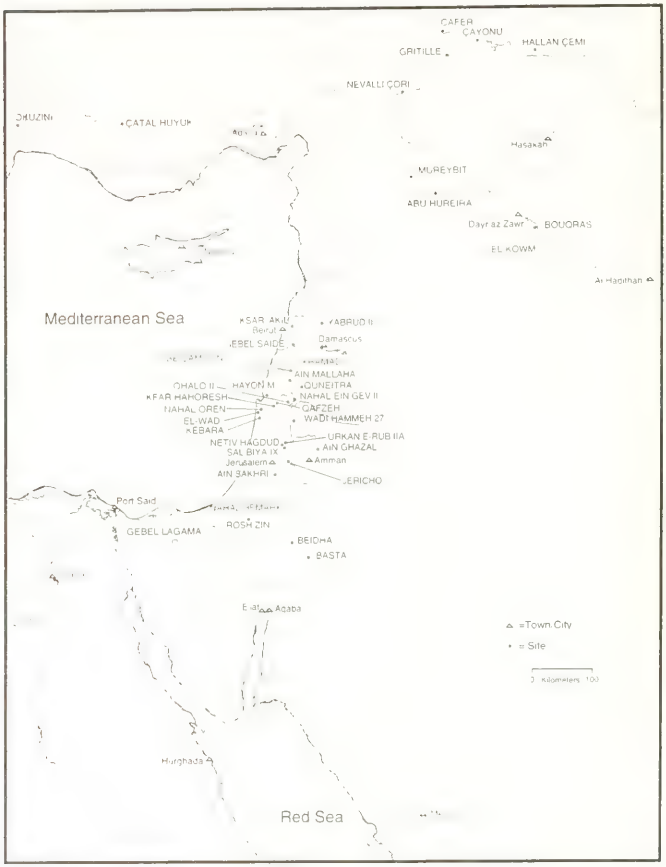

FIGURE 1. A map indicating the location of sites mentioned in the text

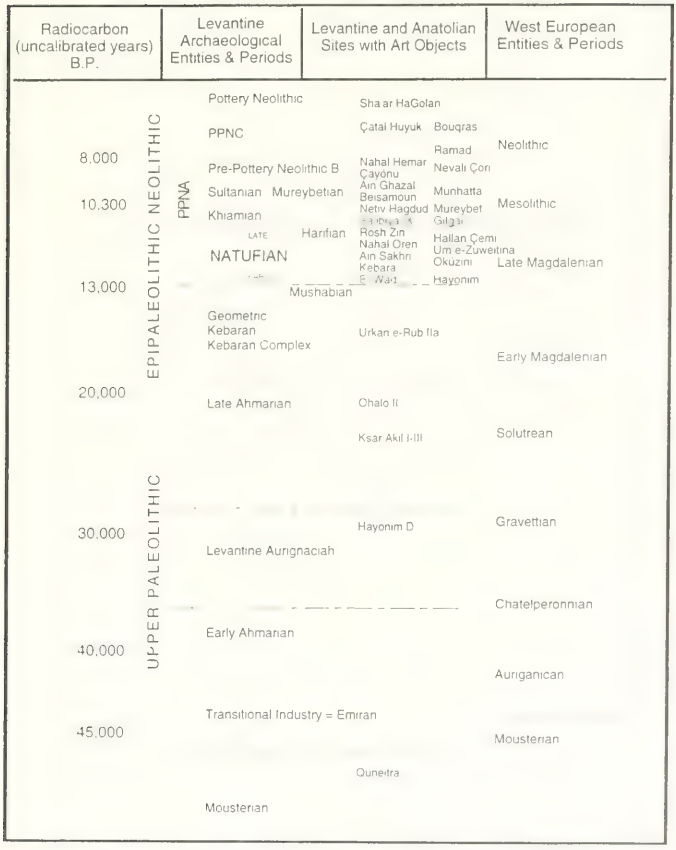

FIGURE 2. Chronological chart indicating the tentative correlation between the Levantine entities and Western Europe

Weinstein-Evron & Belfer-Cohen 1993; Marshack, this volume; Yalçinkaya *et al* 1995). In the absence of an overall review paper on symbolic expressions in Levantine prehistory, I describe in this chapter the flimsy evidence from the various archaeological periods and cultures (Figure 2). While I begin with a few comments on the Middle Paleolithic mortuary practices, the use of red ocher and marine shells, I mainly concentrate on Upper Paleolithic and Epipaleolithic (or Late Paleolithic in the

European terminology) remains, and briefly discuss finds from the Early Neolithic, focusing on the Levant.

I include a discussion of the Neolithic period in order to stress the proliferation of art objects and rock engravings during the Holocene in contrast to their paucity in the Late Pleistocene, with the exception of the Natufian culture. I feel that the inclusion of the Early Neolithic in this discussion helps us answer the question of why prehistoric 'art' objects became relatively abundant only during the very late prehistoric times in the Near East. Furthermore, an overview that brings together Late Pleistocene and Holocene symbolic expressions is more comparable to what has been recorded in South Africa and Australia (see Parkington & Manhire, Lewis-Williams, and Rosenfeld, this volume).

The ensuing discussion considers the implications of several interpretations of prehistoric art to the Near Eastern records and ends with tentative interpretations of Levantine symbolic expressions.

Mortuary Practices

Mortuary practices are known from the Middle Paleolithic of the Near East where humans buried some of their dead in the very cave sites they inhabited (*e.g.*, Shanidar, Dederiyeh, Amud, Qafzeh, Skhul, Tabun and Kebara). Two nearly complete graves (Skhul V and Qafzeh 11) provide direct evidence for the intentional inclusion of grave offerings (a jaw of wild boar in Skhul and deer antlers in Qafzeh; Garrod and Bate 1937; Vandermeersch 1969b).

During the Upper Paleolithic, the main trend seems to have been to bury the dead outside the occupied zone. Because of this, the number of known burials is small. They include the skeleton of 'Egbert' from Ksar 'Akil (Bergman & Stringer 1989), the individual flexed skeleton in Nahal Ein Gev I (*ca.* 25-20,000 BP; Arensburg 1977), and the shallow supine burial in Ohallo II (19,000 BP; Nadel 1994). The presence of a few isolated human bones at various cave sites may indicate shallow burials or the use of selected bones for other purposes (*e.g.*, rituals). If graves were located away from the main occupational horizons in caves, rock shelters, and open-air sites, the chances of archaeologists recovering them are haphazard unless the excavation strategies incorporate 'outside' areas. This hypothesis is supported by the isolated burial from Ohallo II where the skeleton was uncovered outside the living zone. That this practice may reflect a separation between the 'interior' and the 'exterior,' the 'mundane' and the 'sacred,' or the 'pure' and 'impure' is a plausible proposition.

Late Paleolithic sites (or Early Epipaleolithic, *ca.* 17,000-13,000 BP, with the exception of the Natufian culture) have yielded isolated, semiflexed burials at Ein Gev I (Kebaran; Arensburg & Bar-Yosef 1973), Neve David (Geometric Kebaran; Kaufman & Ronen 1987), where the skeleton was covered with a few mortars and stone bowls, and Kharaneh IV (Kebaran) in Jordan (Muheisen 1985). In spite of the small number of excavated sites from this period, on-site burials seem to have become again a common practice, with the more elaborate ones found at the subsequent Natufian settlements (*ca.* 13,000-10,300 BP).

At Natufian sites, graves occur in open areas, beyond dwelling structures and abandoned houses. This practice is generally interpreted as symbolizing ownership of the locale. Burials vary in position (flexed, semiflexed, and extended), number of individuals per grave (ranging from one to five or more), grave structure, body decorations (found only in Early Natufian graves) and accompanying objects. About

one-third of the burials are of children. Most of the Natufian cemeteries are generally well recorded (*e.g.*, Garrod & Bate 1937; Perrot & Ladiray 1988; Valla 1991; Bar-Yosef & Goren 1973; Noy 1991; D. E. Bar-Yosef 1991; Belfer-Cohen 1988, in press; Belfer-Cohen & Hovers 1992).

The new custom of selective skull removal was first observed in the Late Natufian burials from Hayonim cave and from the terrace at Nahal Oren (*e.g.*, Belfer-Cohen 1988; Stekelis & Yizraeli 1963). Special graves, in which dogs and humans were buried together, were found at Ain Mallaha (Davis & Valla 1978) and on the Hayonim terrace (Valla 1990). These animal/human burials testify to a changing view of human relationships with nature during the Natufian (Valla 1990).

Efforts to decipher social hierarchy from the Natufian burials have not been successful (Wright 1978; Belfer-Cohen in press; Byrd & Monahan 1995). However, the presence or absence of body decorations (Figure 3) and their particular combinations within the graves have enabled us to differentiate between various base camps such as El-Wad cave and terrace, Hayonim cave and Terrace, Ain Mallaha, and Nahal Oren (Belfer-Cohen 1991a; Belfer-Cohen & Bar-Yosef n.d.; Belfer-Cohen *et al.* 1991).

During the Early Neolithic, the same burial practices continued. In the Pre-Pottery Neolithic A and B periods (abbreviated as PPNA and PPNB; *ca.* 10,300 to 7,700 or 7,500 BP), burials were flexed and semiflexed and placed in open areas and abandoned houses. Adults were clearly treated differently than children. Adult skulls were removed (without the jaw) while juvenile burials were not touched.

During the PPNB, selected adult skulls were covered with plaster and painted particularly on their frontal part (Ramad, Beisamoun, Jericho, Kefar Hahoresh, Ain Ghazal). In one case from the cave of Nahal Hemar, the top and back of the skulls were covered with a mixture of collagen and asphalt in a net pattern (Bar-Yosef & Alon 1988). These practices of skull modification are often interpreted as 'the cult of the ancestors' (*e.g.*, Cauvin 1972, 1994; Bar-Yosef & Belfer-Cohen 1992 and references therein). Since the number of skull-less skeletons is larger than the number of known treated skulls, either the missing skulls were placed elsewhere in the site or only some of the skulls (perhaps those belonging to an elite group) were treated. Written Ugaritic mythical stories support the interpretation of special treatment (Margalit 1983).

Regional differences within the Near East evolved during the PPNB and led to the formation of at least three major interaction spheres (the Levantine, the Zagrosian and the Anatolian). This development of a more specific social geography may have been caused by the advent of agriculture and animal husbandry (Bar-Yosef & Meadow 1995). Of the mortuary practices from this period, one of the most notable is the 'house of the skeletons' from the village site of Çayönü in southeast Turkey (Çambel 1980; Özdogan & Özdogan 1989). In marginal areas of the Levantine interaction sphere, among PPNB desertic groups in southern Sinai who descended directly from earlier hunter-gatherers, secondary burials were practiced and skulls were kept with several postcranial elements in underground storage facilities (Bar-Yosef 1984; Hershkovitz & Gopher 1990; Hershkovitz *et al.* 1994).

Certain changes took place during the final phase of the PPNB (also known as Late PPNB; 8,500-8,000 BP) and during what is currently termed the PPNC (8,000-7,700/500 BP; Rollefson & Köhler-Rollefson 1993). The practice of removing skulls from adult skeletons ceased and secondary burials became more common than in the previous period.

Major changes occurred during the Late Neolithic (also known as the Pottery Neolithic; *ca.* 7,500-6,500 BP) and the Chalcolithic (*ca.* 6,500-5,500/300 BP) peri-

ods. Graveyards were removed from the 'interior' (dwelling areas) to the 'exterior' (the outskirts of the sites).

Red Ocher, Marine Shells, Beads and Pendants

Both red ocher and marine shells, on clothing, headgear, belts, *etc.*, are considered elements of body decoration (*e.g.*, Wreschner 1976; D. E. Bar-Yosef 1989). The earliest presence of ocher is noted in Mousterian sites. A fine example of a large, scraped lump of red ocher was found at Qafzeh (Vandermeersch 1969a). Several Mousterian artifacts from Hayonim cave retained red ocher on the retouched edge.

Red ocher was also used during the Upper Paleolithic and the Epipaleolithic. A limestone slab and a hand stone both smeared with red ocher were uncovered in the Upper Paleolithic layers in Qafzeh cave (Ronen & Vandermeersch 1972) in layers that contain early Ahmarian industry (Figure 2). Several limestone slabs bearing markings of red ocher were found in Hayonim layer D (Levantine Aurignacian) and flint artifacts stained with red ocher were uncovered in the Lagaman sites in northern Sinai (Figure 2; for references see Belfer-Cohen & Bar-Yosef 1981; Bar-Yosef & Belfer 1977; Gilead 1991). Red ocher is also recorded from almost every site dating between 30,000 BP and 8,000 BP.

A few marine shells of nonedible species, mostly *Glycymeris*, occur for the first time in Skhul and Qafzeh caves in Middle Paleolithic contexts (Bar-Yosef 1989; Belfer-Cohen &Hovers 1992). Upper Paleolithic assemblages contain several species of marine shells collected along the shores of the Mediterranean Sea. Often the apex or the body of the shell was abraded in order to facilitate their use as beads, pendants or buttons (D. E. Bar-Yosef 1989).

At early Natufian sites, we can note a significant shift in the suite of collected shell species and their frequencies. While most were collected along the Mediterranean coast, a few originated from the Red Sea. The most common species is *Dentalium* sp. which was used in great numbers for decorating headgear, belts, bracelets, and perhaps also sewn onto clothing (Figure 3; D. E. Bar-Yosef 1991; Reese 1991). In sites from the Harifian culture (for chronological placement see Figure 2), which is considered to be a Late Natufian adaptation to the semiarid zone of the Negev and northern Sinai (Bar-Yosef 1987; Goring-Morris 1991), a different geographic orientation in shell collection has been noted (D. E. Bar-Yosef 1989). These sites contain a significantly greater number of species from the Red Sea and the Indian Ocean than do Natufian sites within the Mediterranean coastal ranges, although the frequencies of Mediterranean shells are still the highest.

Natufian jewelry also includes other types of beads and pendants that were made of limestone, basalt, greenstone, malachite, bone and teeth, mostly wolf canines (Figure 3). Greenstone beads were found in many sites but it is not clear whether they were brought as finished products or as raw materials from their unknown sources in Syria, Jordan, or Sinai. Their presence does indicate local exchange over distances of 100-200 km. Even greater distances are attested to by the first use of obsidian from Anatolia and of the fresh water shell *Aspatharia* from the Nile at Ain Mallaha (Valla 1987).

During the Neolithic, the variability of shell species used for making beads decreased considerably. While this holds true for the collections retrieved from farming communities, the situation differs considerably for sites occupied by hunter-gatherers

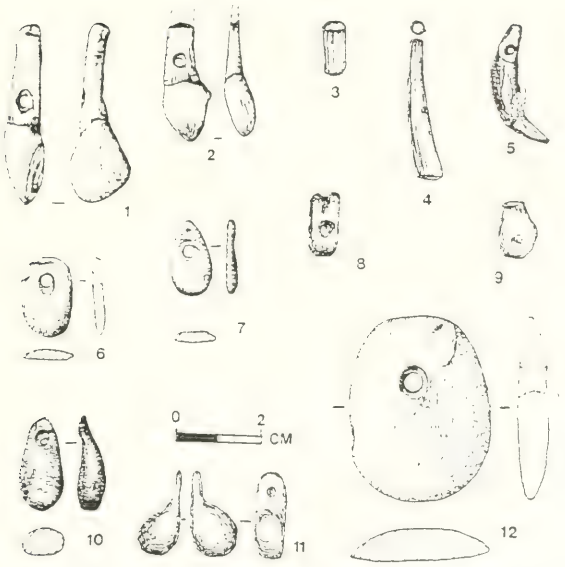

FIGURE 3. Aurignacian and Natufian beads and pendants: (1, 2) Levantine Aurignacian beads from Hayonim Cave, (3, 4) *Dentalium* shell beads from erq el-Ahmar, (5) perforated wolf canine, (6, 7, 10, 12) bone pendant from Hayonim Cave, (8, 9) bone beads from erq el-Ahmar, (11) double twin pendants from El Wad. After Belfer-Cohen & Bar-Yosef (1981), original drawings of the author

in the semiarid and arid zones such as southern Sinai where many species are represented among the large collections of shells (D. E. Bar-Yosef in press).

Beads made of hard minerals and a smaller number shaped from animal bone continue to be present in most Neolithic contexts. Anatolian obsidian found in many Levantine Neolithic sites indicates exchange over a distance of 500-700 km.

Incised, Engraved Objects and Figurines

Upper Paleolithic and Early Epipaleolithic

The number of incised or engraved items found in Upper Paleolithic contexts, including the early Epipaleolithic, is small. The following descriptions list most of these objects.

Materials dating to the Upper Paleolithic include the Levantine Aurignacian assemblage of Hayonim layer D, radiocarbon dated to 29,000-27,000 BP, where two engraved limestone slabs were found, one of which has been published (Belfer-Cohen & Bar-Yosef 1981; Bar-Yosef & Belfer-Cohen 1988; Figure 4). The cluster of

finely incised lines on this small slab, interpreted as depicting a 'horse' is supported by Marshack's (this volume) detailed analysis. In addition, a few small limestone slabs, not yet published, bear stains of red and black paint.

A bone point with a series of vertical incisions came from the Late Ahmarian assemblages in Ksar 'Akil (Tixier 1974; Marshack, this volume). A somewhat similar bone object with a series of vertically incised lines was recovered at Ohallo II, and dated to 19,000 BP (Nadel 1994).

A more elaborate pattern created by finely incised lines on both faces of a flat limestone pebble came from a Kebaran site of Urkan er-Rubb IIa (Hovers 1990), and was dated to 15,000/14,500 BP. One face contains fine, semicircular, parallel lines with short vertical ones and two sets of parallel lines with a 'ladder' pattern (see Hovers 1990 and Marshack, this volume). Five series of lines connect the previous ones to the edges of the pebble. The other side bears two clear 'ladder' patterns and a fill of cross- hatched pattern. Incised pebbles were also discovered in the Öküzini cave in southwest Turkey (Marshack, this volume). The date of these objects is unknown but recent excavations there (Yalçinkaya *et al.* 1995) indicate that they may have been retrieved by Kökten from layers dated to 13,200 – 11,900 BP and are therefore contemporary with the Early Natufian culture.

It is worth mentioning that Kökten named Öküzini cave after a depiction of an aurochs which he apparently found on the cave wall (Yalçinkaya *et al.* 1995). While this figure is not visible today, a clear engraving of an aurochs on a pebble has been identified. A simplified human figure at the lower part of the aurochs is interpreted as thrusting a spear into the animal's chest (Marshack, this volume).

A second pebble bears three 'blocks' of parallel incised lines in the 'ladder' pattern on one surface. Two groupings of 'ladders' are 'horizontal' and the group in between is 'vertical' in relation to the other two. The other surface of this pebble has an open circle with smaller circles in it, two branching lines forming a 'corridor' with a few additional incomplete circles and an additional branching 'ladder.'

In the Levantine context, it is interesting to note that this large open circle and 'corridor' resemble depictions of 'desert kites' used as drives for gazelle hunting (Meshel 1974; Betts & Helms 1986). This type of drive with two 'arms' built either as two rows of stones or as wooden pegs is known also from various geographic regions such as Scandinavia (*e.g.*, Barth 1982) and the North American high plains (*e.g.*, Frison 1968) where they were used to hunt other herd animals. In southwest Turkey, wild goats and/or wild sheep, the bones of which are common in the faunal assemblages at Öküzini (Yalçinkaya *et al.* 1995), may have been hunted by a similar technique. While aurochs bones are rare in this site, they do occur at other Late Paleolithic sites such as Hallan Çemi (Rosenberg & Davis 1992). This taxon is an especially common figure at Çatal Hüyük, and could have played an important role in prehistoric Anatolian rituals (Cauvin 1994).

The Natufian Culture (13,000/12,800-10,500/300 BP)

Natufian 'art objects' include both figurines and incised and engraved objects (Figure 5). The relative richness of this Levantine inventory, in part contemporary with the European Magdalenian (see Figure 2), was overlooked in a recently published overview of non-European symbolic expressions (Bahn 1991). Both the mobiliary objects and the incised limestone slabs found at these sites emphasize the uniqueness of the Natufian culture among contemporary Near Eastern Epipaleolithic entities.

FIGURE 4 The 'horse' from Hayonim layer D (Levantine Aurignacian). Photograph courtesy of Israel Museum

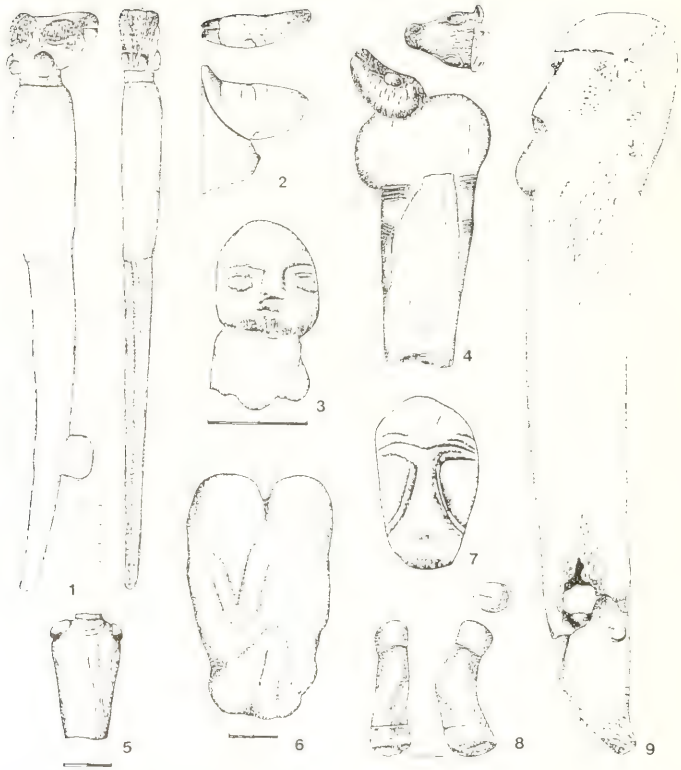

FIGURE 5. Natufian objects: (1, 4) decorated sickle hafts, (2) gazelle head, (3) human head, (5) human torso, (6) couple engaged in intercourse, (7) schematic human head, (8) schematic human (?), (9) double figurine, ungulate and human head. Provenience: (1) Kebara cave, (2, 9) Nahal Oren, (3, 4, 8) El Wad, (5, 7) Ain Mallaha, (6) Ain Sakhri. After Perrot (1966), Noy (1991), and Weinstein-Evron & Belfer-Cohen (1993)

Recovered incised objects include, among others, several large, heavy limestone slabs with incised geometric forms and one large 'fish' (?) unearthed in Hayonim (Belfer-Cohen 1991a). The common pattern on these slabs consists of numerous vertical strokes enclosed within two long parallel lines forming the 'ladder pattern'. One of these large slabs is described by Marshack (this volume). It is worth mentioning that the 'ladder' pattern was also incised on several sides of a large, squarish, elongated block (Figure 8), referred to as the 'stele,' which apparently stood in one of the rounded 'rooms' at Hayonim cave (Belfer-Cohen 1991a).

Other large carved limestone slabs exhibit a 'meander' pattern. These were uncovered at Wadi Hammeh 27 (Figure 6:2). The same pattern is found on broken large bowls at Ain Mallaha and Shukbah (Edwards 1991; Noy 1991, and see Figure 6).

No human or animal figurines dating prior to 13,000 BP have been found in the Near East to date. With the emergence of the Natufian culture, however, came an increasing number of figurines, a trend that continued into the Early and Late Neolithic. Two of the Natufian figurines, both found by Neuville in the collections of Bethlehem monasteries in the late 1920's, attracted much attention. One, a small item which represents a couple engaged in sexual intercourse (Figure 5:6), has recently been re-examined in detail (Boyd & Cook 1993). The general form of this figurine resembles a schematic one uncovered at Nahal Oren from a PPNA context (see Stekelis & Noy 1963). The second figurine is the small limestone 'kneeling gazelle' in which the head is missing. Amiran (pers. comm.) considers this item to be of mid-Holocene Egyptian origin.

Other Natufian animal figurines were found at Kebara cave, El-Wad cave and terrace, Ain Mallaha and Nahal Oren. Some, carved on bone, were previously interpreted as depicting young gazelles (*e.g.*, Garrod & Bate 1937; Stekelis & Yizraeli 1963; Perrot 1968; Cauvin 1972, 1994; Bar-Yosef 1983; see Figures 5:1, 2, 4). This is probably an overstatement, since all that can be said with certainty about them is that they are generalized images of young ungulates. They appear as decorations of sickle hafts or as individual mobile items. Two animal figurines carved and incised on limestone, uncovered at Nahal Oren (Noy 1991), represent a double image of a dog and owl (Figure 6:1) and a 'baboon' (Figure 6:3). Another double image, carved on a horn core from the same site, depicts a human face and an ungulate head (Figure 5:9).

Rare human representations from El-Wad and Ain Mallaha (Garrod & Bate 1937; Weinstein-Evron & Belfer-Cohen 1993; Marshack, this volume), are often rather schematic in shape, with no specific indications of gender (Figure 5:3). They herald what later became a major subject in Neolithic iconography.

Other 'decorated objects' include several domestic tools. For example, shaft straighteners made of basalt from Nahal Oren have a special shape (Figure 6:4) and are decorated with a carved meander pattern. Other objects include pestles, which were often made of basalt and brought to the coastal sites from distances of 60-100 km (Weinstein-Evron *et al.* 1995). Some of these bear engraved designs while others have a phallic shape. The latter can also be found in Harifian contexts (Goring-Morris 1991) and in the Southern Sinai site of Abu Madi I which dates to the PPNA period.

The Early Neolithic (*ca.* 10,300-7,800/500 BP)

Art objects became numerous during the Early Neolithic. Sites from the earliest phase, the PPNA, however, have not revealed as many items as those from the following phase, the PPNB. PPNA figurines are often small, made of clay or limestone and are generally broken. They have been uncovered at Mureybet III (Cauvin 1977; 1994), Jericho (Kenyon & Holland 1983), Gilgal I (Noy 1986), Salibiya IX (Bar-Yosef 1980) and Netiv Hagdud (Bar-Yosef *et al.* 1991; Bar-Yosef & Gopher in press; Noy 1986). Most figurines represent females, as indicated by the presence of breasts.

The female figure seems to occupy a particular place in PPNA imagery. A few of the eight female figurines, made of limestone and baked clay, are shown in Figure 7. They originate from Mureybet III (dated to the early PPNA, contemporary with the Khiamian). The other figurines from Salibiya IX, (Figure 7:1) Gilgal I and Netiv Hag-

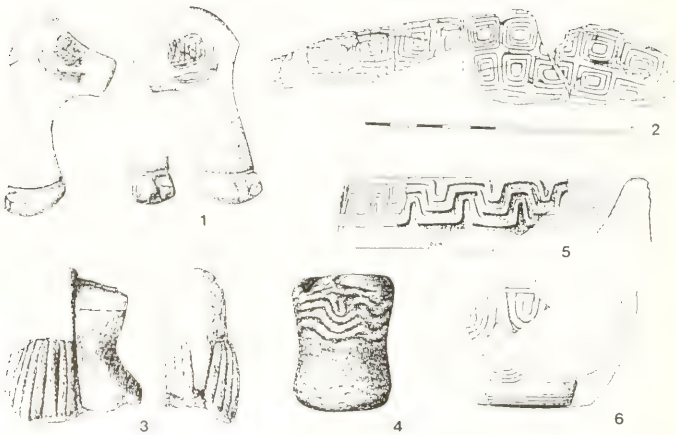

FIGURE 6. Natufian art objects: (1) limestone double figurine, dog and owl, (2) large slab with engraved meander and square patterns, (3) limestone 'baboon' figurine, (4) basalt shaft straightener, (5, 6) decorated basalt mortars. Proveniences: (1, 3, 4) Nahal Oren, (2) Wadi Hammeh 27, (5) Shukbah, (6) Ain Malllaha. After Noy (1991).

dud (Figure 7:4) depict either a 'seated woman,' a motif that was repeated in later assemblages, or standing females.

The seated female figure (Figure 7:4, Figure 8:2, 3, 5) represents an image common to the entire Near East particularly during the Early Neolithic. In the PPNB and the Pottery Neolithic periods, female figurines occur at Anatolian sites such as Çayönü, Cafer Höyük, and Çatal Hüyük (*e.g.*, Mellaart 1975; Cauvin 1972, 1985, 1994). Often, these are interpreted as being in the posture of giving birth (Noy 1986). Only the later seated female from Çatal Hüyük, who is shown resting her hands on the two standing panthers at her sides, heralds the different concept of an enthroned 'goddess' or 'mother-goddess' (Mellaart 1967; Cauvin 1994; Noy 1986).

Human statues made of reeds and plaster depicting either complete forms or busts alone seem to have been a Levantine innovation (Figure 8). Despite having been painted, they show no clear indication of gender, and are generally interpreted as representing deities. The best preserved of these were uncovered at Ain Ghazal (Rollefson 1983, 1986; Rollefson *et al.*1992), and in fragmentary states at Jericho, Tel Ramad and Nahal Hemar (Garstang & Garstang 1940; Contenson 1967). Their deposition in pits is considered to be the interment of used paraphernalia, a custom which is well recorded in the Near East from Early Bronze age contexts (Garfinkel 1994).

If Amiran's (1962) and Margalit's (1983) proposal is valid, then the human statues and plastered skulls are the direct expressions of a Neolithic cosmology that was written down three or four millennia later in the Mesopotamian and Ugaritic texts on human creation and ancestor veneration. Oral traditions lasted in the pre-literate world for a very long time and therefore the proposed relations between Holocene archaeological remains and documented mythologies in the same region are plausible.

The small female figurines that are present in PPNB contexts, even if not numerous, continue from the PPNA and into the Yarmukian culture (Stekelis 1972), which is a Pottery Neolithic entity (see Figure 2). A selection from the Yarmukian is presented in Figure 9, demonstrating the depiction of figures wearing a special garment with a high headgear. Incised pebbles where only one line is present were interpreted as representations of female genitalia.

Animal representations continue from the Natufian onward with depictions of birds of prey found at Mureybet III, Gilgal I and PPNA Jericho. Cauvin (1994) interprets the combination of humans and animal figurines as the dichotomy in the world of deities. Later, during the PPNB, the aurochs takes the place as a major element, a counterpart to the female figure, giving rise to what Cauvin calls 'the new religion,' namely that of the 'Woman and the Ox.' The presence of complete aurochs' horns at several sites such as Hallan Çemi (of Late Natufian age; Rosenberg & Davis 1992), and at Mureybet III, together with more direct evidence of bucranes and frescoes from other sites, most notably Çatal Hüyük, indicates the prominence of this ritual (Cauvin 1994) in the northern Levant and Anatolia which was probably where it emerged.

Finally, it is worth mentioning that incised pieces with specific designs are found in small numbers through the entire sequence of the Early Neolithic. Among these, the incised flat pebble from Netiv Hagdud is most notable (see Bar-Yosef *et al.* 1991). PPNB shaft straighteners decorated on their back side with zigzag incision or deeper engravings found in Mureybet III, Cafer Hüyük and Cheikh Hassan (Cauvin 1994) may indicate familial ties between these northern Levantine and southeastern Anatolian sites. On the whole, most of the artistic expressions on mundane tools, as well as the appearance of stamps after 9,000 BP (*e.g.*, Cauvin 1994), can be interpreted as a further development in the materialistic expression of individual ownership.

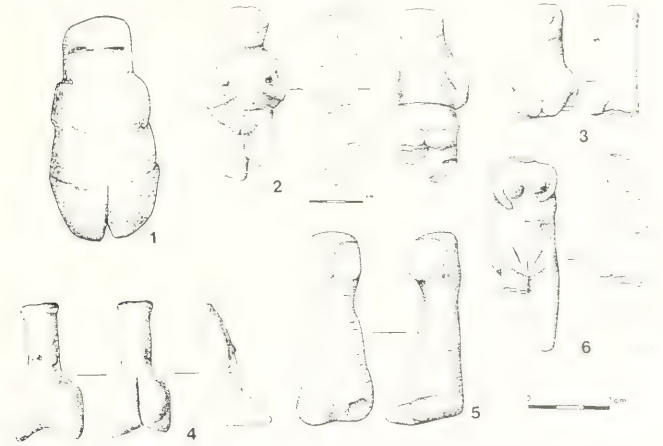

FIGURE 7. PPNA human figurines: (1) Salibiya IX, (2, 3, 5, 6) Mureybet, (4) Netiv Hagdud. After Bar-Yosef (1980), Noy (1986), and Cauvin (1994)

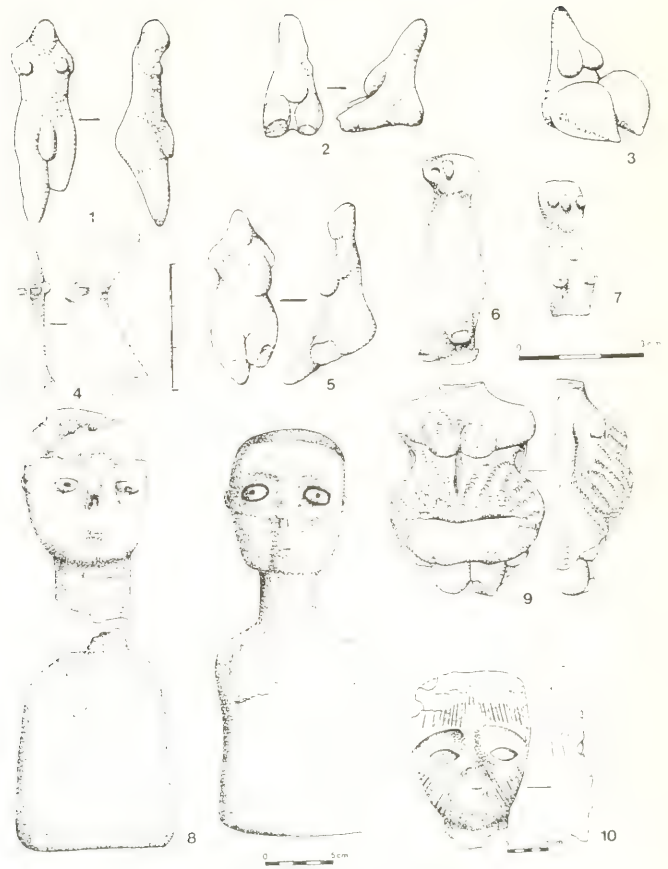

FIGURE 8. Early Neolithic (PPNB) female and male figurines and plaster statues: (1, 6) males, (2, 3, 5, 7, 9) females, (4) human, (8, 10) plaster human statues. Provenience: (1, 5) Çafer, (2, 3) Çayönü, (4) Ramad, (6, 7) Munhatta, (8, 9) Ain Ghazal, (10) Jericho. After Cauvin (1994)

In sum, most of the art objects in the Levant, except for the few large Natufian slabs, generally seem to be objects of sacred value for personal, domestic use. Therefore they may be similar to Central or Eastern Europe mobiliary art. The Neolithic and Chalcolithic frescoes in the Near East seem to resemble the European and Australian

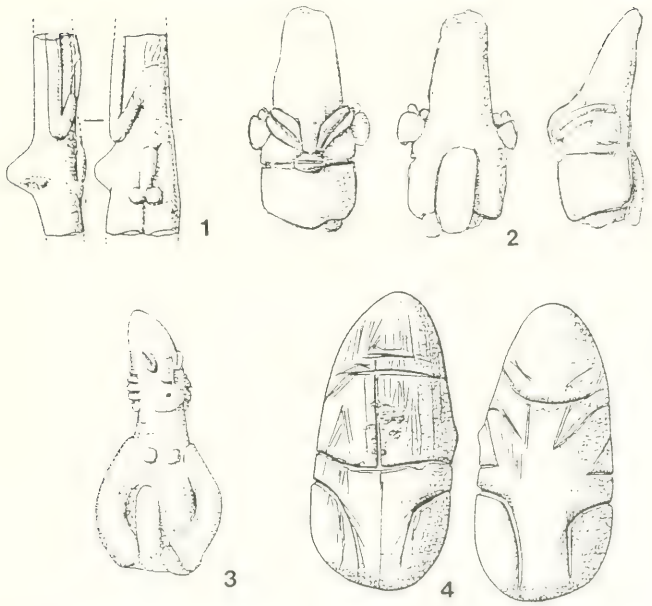

FIGURE 9. Selected Yarmukian female figurines: (1) Munhata, (2, 4) Sha'ar HaGolan, (3) Byblos. After Noy (1991)

cave paintings and large rock art panels which were probably executed by shamans or holy men.

Discussion

In discussing the potential answers to the issue of what this art means, we need to respond to the following questions: (1) Why are Near Eastern Upper Paleolithic and Epipaleolithic symbolic expressions so few in number; (2) Why are these predominantly mobiliary and notational instead of full fledged rock art; and (3) What are the possible interpretations of the various classes of Epipaleolithic and Early Neolithic symbolic expressions?

Art, Environment, and Demography

In responding to the first two questions we can ascertain that not all contemporary populations of *Homo sapiens sapiens* across the Old World left behind a large corpus of artistic or symbolic expressions. That the artistic expressions are not the result of

the availability of proper sites (rock shelters and deep caves) or raw materials (*e.g.*, bone and antler) can be demonstrated by even a cursory comparison between two similar regions. For example, during the Late Pleistocene, western Georgia, which lies next to the Black Sea, witnessed climatic conditions that were generally similar to those of the Franco-Cantabrian region (Velichko 1984). Nor did the rock shelters and limestone caves in the deep gorges of the Caucasus differ much in morphological configuration and types of sediment from those of the Dordogne. Nevertheless, no Upper Paleolithic parietal or mobiliary art has ever been found in western Georgia despite numerous excavations (*e.g.*, Liubin 1989).

The archaeological evidence presented above from the small area of the Mediterranean Levant tells a similar story even though the number of excavated Upper Palaeolithic sites is limited (*e.g.*, Bar-Yosef & Belfer-Cohen 1988; Gilead 1991). This difference between the Franco-Cantabrian region and the circum-Mediterranean area is not accidental – a fact amply demonstrated by the new discoveries at Grotte Cosquer and Grotte Chauvet in France (Clottes, this volume) – but rather a reflection of a unique cultural history. The uniqueness of this region forces us to reverse the question: instead of identifying Franco-Cantabrian art with the emergence of modern human behavior and language (*e.g.*, Mellars 1989; Eccles 1989; Davidson & Noble 1989, White 1989), we should ask why and under what kind of social conditions was art produced in this particular area. We could also delve into the meaning of this art, but that aspect is dealt with by other contributors to this volume (see Davidson, Clottes, Gonzales-Morales, this volume).

Studies of pan-European Pleistocene art may enhance our insight into the uniqueness of western Europe. Furthermore, understanding the particular circumstances associated with the appearance of mobiliary art in central and eastern Europe, including Siberia, may shed light on specific human behavior in these regions and, by inference, enable us to interpret the paucity of art objects in other regions of the Old World (Soffer, this volume). Why this may be so is considered below.

Most scholars agree that imagery is related to ritual, an essential part of social activities shared by all hunting and gathering societies (*e.g.*, Leroi-Gourhan 1965; Lewis-Williams & Dowson 1988; Eliade 1989; Marshack 1990; with references therein). If Near Eastern peoples did not produce rock art and produced only very few mobiliary objects, they may have differed from their Eurasian and Australian contemporaries in their social structure (see also Davidson, this volume). They were not, however, alone. Other Late Pleistocene hunter-gatherers, for example most of the groups in North and South Africa, did not produce imagery items in great quantity either. This stands in sharp contrast to the Holocene florescence of symbolic expressions across the entire world. Why was this so?

The search for a common denominator behind the creation of rock art led Lewis-Williams (*e.g.*, Lewis-Williams 1984, 1991; Lewis-Williams & Dowson 1988, 1989), to look for a neuropsychological model that would explain why shamans paint. The model is based on the way the human brain reacts to hallucinatory states. The subjects of the depicted signs and figures are interpreted to be entoptic (within the optic system) visions. Lewis-Williams proposed using the same model to explain Upper Paleolithic European art (Lewis-Williams 1984, 1991, this volume). What remains unanswered in the course of this systematic effort is why shamans in groups living in other regions did not express their altered state of consciousness in a similar way.

If we assume that all prehistoric bands of hunter-gatherers, regardless of the fluidity of their social structure, had some sort of a holy person, then according to the Lewis-Williams model, we should expect to find similar artistic expressions, espe-

cially in regions where rock shelters and the appropriate raw materials were available. However, we have seen that this is not the case. Therefore, it seems that there may be another social and ecological dimension to this issue (Mithen 1991). Differences in patterns of symbolic behavior could have been related to the particular social structure of the groups, *i.e.*, the intensity and frequency of social interaction on all levels (intra- and intergroup, within macrobands or 'tribes').

Concerning the Near East, the following considerations could constitute a basis for such an explanation. It is common to argue that the distribution, reliability, accessibility, and predictability of resources within a given area dictated the foraging strategies of hunter-gatherer populations and resulted in the formation of a given social structure. Most Near Eastern environments, especially those close to the Mediterranean Sea, provided predictable resources. These include animal protein (over 30 species of mammals, reptiles and birds) and especially abundant plant food with over 150 species of exploitable seeds, fruits, leaves, tubers and roots. All resources could be exploited over short distances (1-20 km). Even when seasonal differences between the cold and rainy winters and the generally warm, often dry summers are taken into account, this region was more lush than many other parts of the Old World and well suited for continuous habitation of human groups. We have argued elsewhere (Bar-Yosef & Belfer-Cohen 1992 with references) that a minimal territory could be cautiously estimated as 250-500 square kilometers per band. Within the steppic belt, which characterizes either the semiarid plains or the high plateaus, larger territories (500-2500 square kilometers) would have been necessary to support a band. Biologically viable populations (*ca.* 400-500 individuals) in the Levant would have required a territory of 4,000-8,000 square kilometers or less. The coastal ranges of the eastern Mediterranean thus provided sufficient resources to accommodate numerous groups of neighboring hunter-gatherer bands with circumscribed territories, small geographic ranges of mating systems, where communication and information exchange was easy and frequent.

Intensity of social interaction, whether within a family, extended family or larger social group (band and macroband) level differs among different cultures. Among modern humans, this intensity is related, at least in part, to the physical proximity of family members, extended families and bands. Absolute proximity is socially constructed in terms of a relative scale of human density. So, for example, what is considered in Belmont, Massachusetts to be a 'thickly settled' area (as noted on a road sign), in any Levantine country would be considered a spacious suburb. Social, economic and psychological requirements, based on the history of a local population are responsible for creating perceived population pressures. In a situation of a dense physical neighborhood, a heightened emphasis on discussion, teaching, and the passing down of oral traditions would serve as the mechanism for resolving intra- and intergroup conflicts.

Social agendas are very different, however, among groups that are geographically widespread and scheduled meetings are required. Under conditions where cohesion needs to be guarded across large distances, ritual is important in order to increase social and biological fitness. On a continental scale, we may see competition among groups (macrobands?) for resources resulting in group selection (Wilson & Sober 1994). In this situation, we would expect to find evidence of nonperishable 'artistic' activities, whether executed by shamans, medicine man or other members of the group (*e.g.*, Lewis-Williams 1984, 1991, this volume).

It can be speculated that certain kinds of social stresses caused in western Europe by climatic fluctuations during the Upper Paleolithic (Gamble 1991) were similar to

those felt by the San during the time when the paintings of the South African rock shelters were done. The Levantine region, even under the impact of climatic changes during most of the Paleolithic, did not witness major shifts in the resource base. It was only in the closing millennia of the Pleistocene that population growth resulted in territorial packing (Binford 1983) and sedentism (Bar-Yosef & Belfer-Cohen 1991, 1992; Henry 1989) and therefore in the production of the Natufian art (Belfer-Cohen 1988).

The apparent contradiction between this model (high population densities leading to art production) and that of the earlier period (geographically widespread populations leading to art production) might be explained by the differences in the kind of art produced in these two situations. Group oriented rock art might have been created by shamans in order to create social cohesion while the smaller scale domestic, personal and notational art objects might have been used to resolve small scale intra- and intergroup conflicts.

Near Eastern Art and Meaning

I now turn to the third question posed above, namely, the interpretation of the Levantine artistic expressions. I do so in a chronological order from the Upper Paleolithic through Early Neolithic (for the time scale see Figure 2).

Levantine Upper Paleolithic sites, from 45,000 through 20,000 BP, are not numerous but suggest that groups or families were more mobile than they had been in the preceding Middle Paleolithic. This can be seen at Kebara cave where there are more scavenged and gnawed bones in the Upper Paleolithic faunal assemblages than in the Middle Paleolithic layers (Speth in Bar-Yosef *et al.* 1992) indicating longer periods of abandonment. The same conclusion was reached for Upper Paleolithic sites in the Negev and Sinai (*e.g.*, Marks & Friedel 1977; Marks 1993; Marks & Ferring 1988; Phillips 1988). This makes the site of Ksar 'Akil, where 18 meters of Upper Paleolithic layers were exposed, a unique occurrence (*e.g.*, Ohnuma 1988; Bergman 1987; Mellars & Tixier 1989). This site, however, is found in a prime ecological area and could have served as a major settlement, perhaps even as an aggregation site. In spite of this, it has produced only one incised bone object.

Evidence for symbolic expressions have been recovered from Levantine Aurignacian deposits (*ca.* 36,000-27,000 BP) with relatively rich bone and antler industries (including split-base points). These assemblages, as discussed above, also yielded personal decorations such as beads made from deer, bear and horse teeth, as well as painted and ocher smeared slabs. The incised 'horse' from Hayonim may reflect the same tradition in animal engraving as found in Europe (see Marshack, this volume). Whether the producers of these assemblages originated in Anatolia or even farther away in southeast Europe remains a matter for speculation. In spite of the claims for the presence of Aurignacian assemblages in the Zagros (Olszewski & Dibble 1994) there is no valid evidence for such an assertion either there or in the Caucasus region (*e.g.*, Liubin 1989).

The rare 'art objects' from the Late Ahamrian (Ksar 'Akil, Ohallo II; *ca.* 27,000-18,000 BP) and the Kebaran (Urkan er-Rubb IIa) complexes indicate, as suggested by Hovers (1990) following Conkey (1984), the use of special objects within a small social circle of an extended family or a macroband. The simple motif composed of series of strokes is interpreted as some sort of notation, but we have no clues as to what the nature of this was. These prehistoric groups made minimal use of a few Mediterranean species of marine shells for body decoration (D. E. Bar-Yosef 1989). Whether

these shells were sewn on clothing or decorated handles of hafted tools and thus were stylistic markers of group membership, or served solely as elements in exchange, is unknown.

It is worth noting that there are only rare 'artistic expressions' which could indicate the increase of social pressures, among Levantine groups during the Late Glacial Maximum. This is probably due to a lesser need among the Kebarans for major social aggregations alleviating scalar stress (Johnson 1982; Hovers 1990). Gatherings of shorter duration and perhaps on a smaller scale are proposed as the Levantine recipe for achieving social cohesion, thus decreasing the need for symbolic expressions (Hovers 1990). It should be noted, however, that we have only a small number of excavated Kebaran sites on hand and that future fieldwork may enlarge the small collection of art objects recovered to date.

The major cultural change occurred in the Levant with the establishment of the Natufian culture (Henry 1989; Bar-Yosef & Belfer-Cohen 1991, 1992), known for its semisedentary or sedentary sites (*e.g.*, Tchernov 1991; Lieberman 1993). The sudden proliferation of 'art objects' at these sites is attributed to social stress (Belfer-Cohen 1988, 1991b, in press; Belfer-Cohen *et al.* nd) – one supposedly caused by a high degree of sedentism accompanied by anticipated seasonal mobility. Under such circumstances the family heads and/or 'shamans' had to find more than one way of alleviating social stress and resolving conflicts whether on intra-and/or intergroup level. Means used for identifying individual groups could have included body decoration, ornaments sewn on clothing, headgear, or the decorations of utilitarian artifacts such as quivers. The scenario adopted in this paper (for details see Henry 1989; Bar-Yosef & Belfer-Cohen 1991, 1992) is that the Early Natufian was formed through the coalescence of Geometric Kebaran groups into larger bands. In the process of clustering, it is possible that additional enhancement of former identity of extended families led to increasing individual differentiation, expressed in those body decorations found in graves. At the same time, the membership in newly formed groups gave rise to what can be identified as emblematic style (as defined by Wiessner 1984, 1989) reflected in body decorations and not in the observable changes in mundane artifact typology.

Under such circumstances, especially since the use of sickles for harvesting instead of beaters and baskets indicates the maximizing of yields from small plots (Hillman & Davies 1990), the marking of territories became a necessity. This could have led to some simple record keeping, perhaps reflected in the notational marks on limestone slabs recovered from Hayonim (Belfer-Cohen 1991a; Marshack, this volume).

The need for territorial markers continued in the Levant for the ensuing millennia. Territorial markers are known from these later periods, when they occur at isolated, well delineated sites which lack habitations in their immediate area. Examples of this can be seen at the PPNB Nahal Hemar cave in the Judean desert, which contained a major cache of discarded paraphernalia (Bar-Yosef & Alon 1988; Bar-Yosef & Schick 1989; Garfinkel 1994), and at the Chalcolithic temple in En Gedi, which presumably was the source for the collection of copper artifacts uncovered at Treasure Cave (Bar-Adon 1971). These two desert localities have their historical analog in the Sheihk tombs, such as those recorded in Sinai, which serve as boundary markers as well as places of annual public gatherings (Marx 1977).

The emergence of cultivating communities during the PPNA (10,300-9,500/300 BP), marked major changes in the subject matter, raw materials and manufacturing techniques in prehistoric art objects. Clearly shaped female figurines appear for the first time, signaling, according to Cauvin (1985, 1994), a major shift in the role of

gender within Neolithic societies. Female images are interpreted as the symbols of fecundity – thus expressing biological 'survival,' both in terms of human reproduction and soil fertility. This image is also inseparable from the status of 'enthroned goddess' or of the 'mother goddess' which were perpetuated through Near Eastern cosmology into the later pantheons (Jacobsen 1976; Eliade 1989).

The human statues from such PPNB sites as Ain Ghazal, Tell Ramad, Jericho and Nahal Hemar cave described above, may represent the creation of humans and/or deities as narrated in the Gilgamesh (Amiran 1962). These statues were probably placed in specific (perhaps public?) houses and indicate the emergence of communal shrines or even temples. The burial of used and broken divine representations heralds a pattern of behavior that marks Near Eastern religions dating to later times (Garfinkel 1994). A similar interpretation is suggested for the large human features carved in stone at Nevali Çori (Mellink 1992) in the Euphrates Valley (Turkey).

Plastered skulls are known from the deposits of PPNB. Stone masks have been found at Nahal Hemar cave, Basta and a few plundered sites. It seems that the development of social hierarchies from PPNA times onward motivated the creation of 'art objects' for various levels of interaction – the family, the village and the 'tribe'. Plastered skulls could have been kept in the main household within quarters shared by several families belonging to the same clan or lineage. In addition, specific collections of paraphernalia were cached in particular locales, such as at Nahal Hemar cave.

I assume, given the different Neolithic contexts described by Voigt (1983, 1991), that the small human and animal figurines were instrumental on the family level, whether within the household or as public donations. Ethnographic examples indicate that figurines prepared especially for rituals lose their value when the feast is over and are given to children (Süger *et al.* 1991).

Animal figurines seem to proliferate during the PPNB probably due to the advent of domestication. In general, they depict taxa in the bovid family and are not always shaped with enough detail to enable identification to a particular species. A few examples found pierced by flint blades have been interpreted as representing hunted animals (Rollefson 1983, 1986).

Any discussion of 'prehistoric art' in the Mediterranean region should not omit data from the periphery, namely the high mountains and the deserts (Bar-Yosef & Belfer-Cohen 1992). Research on the emergence of pastoral societies (see Bar-Yosef and Khazanov 1992) may enable us to understand the numerous rock engravings found in the Sinai and the Arabian peninsula (Rhotert 1938; Anati 1993). These mostly represent herded and hunted animals and are simply engraved and pecked. Sometimes entire scenes are present, such as hunting with the aid of drives (the 'desert kites').

Conclusions

In closing, I return to the question of why there are only few artistic expressions in the Upper and Epipaleolithic in the Near East.

First, in comparison to Western Europe, we have few sites on hand. Additional excavations will undoubtedly uncover more art pieces. In spite of this, we can hardly expect to find such concentrations as those found at Magdalenian sites. In the Levant, where because of less stable annual precipitation, the formation of stalagmitic crusts was slower than in Western Europe, parietal art may not have survived. Intensive and extensive surveys of underground cavities in Israel and the speleological investigations in Turkey, however, have produced no positive evidence for rock paintings, carvings or incised designs.

Southwestern Turkey presents a special case. A few rock paintings have been recorded at the entrances to the Karain and the Öküzini caves (Anati 1968) but their age is unknown. The painted pebbles from Beldibi (Bostanci 1964) and the incised ones from Öküzini are of greater importance because they may indicate a higher incidence of art objects in this area than in the Levant. It should be remembered, however, that all these items are essentially of Epipaleolithic age, contemporary with the Natufian, even though they come from small hunter-gatherer campsites.

Other explanations for the paucity of art objects may posit that the artistic manifestations were made of perishables. The survival of a fiber fragment at the water-logged site of Ohallo II (Nadel 1994) suggests taphonomy may be involved.

All this suggests that we need to seek answers in the social realm. The Epipaleolithic social context may not have required large aggregation sites. Intensive, frequent social contacts and geographically small mating systems may well account for the paucity of mobiliary items in the Levant (Hovers 1990).

The major socioeconomic change in the Natufian culture heralded an organizational restructuring of social groups. The need for alleviating social stress and for identifying various groups probably resulted in an increase in the use of body decorations, notational records, and in caching of special objects. This tendency continued through the Early Neolithic. Increasing sizes of social units which reached the level of entire biologically viable entities living in one village, such as Çatal Hüyük, led to the emergence of complex symbolic behaviors for enhancing group cohesion, and resolving intragroup conflicts.

Finally, as mentioned above, the fundamental lesson to be learned from the Levantine prehistoric art record is that we need to reverse our questions and ask why artistic/symbolic manifestations proliferated in Upper Paleolithic Eurasia and Australia while in other parts of the world, it emerged in the terminal Pleistocene and proliferated during the Holocene.

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When the Beasts Go Marchin' Out! The End of Pleistocene Art in Cantabrian Spain

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Recently, there has been a good deal of discussion about the beginning of symbolic expression in human societies, *i.e.*, the beginning of art among Paleolithic hunter-gatherers linking it to a variety of causal variables. An important part of the debate has been focused on the chronological coincidence, or lack of it, between the first symbolic expressions preserved in the archaeological record and the appearance of anatomically modern humans in Europe or Australia, and on the definition of what can be named as unequivocal symbolic expressions, and their earliest chronology (Conkey 1983, Chase & Dibble 1987, Davis 1986, Duff *et al.* 1992).

Much less interest has focused on the other end of the question – that of the end of Upper Paleolithic art and symbolism. Any attempt at global interpretation must deal necessarily with both sides of the problem: The origins and the ends, because understanding one can help understand the other.

Elsewhere (González Morales 1991), I have examined the subject matter depicted in Upper Paleolithic Cantabrian parietal art, focusing on two issues: Temporal variability and the possible correspondence between the subjects depicted and the available resource base. This study revealed many problems extant in studying art, including defining and describing the subject matter represented, and dealing with long-standing biases in the study of this subject matter. In this chapter I focus on these methodological problems because their resolution must precede any attempt to reach higher orders of inference.

The study of the subject matter depicted in Paleolithic parietal art has often been dealt with in a sketchy and descriptive manner, glossing over many issues that could, and should, be given more detailed discussion. This glossing has led us away from verifiable observations to subjective concepts and descriptions. Because of methodological conventions, some of these biases are repeated in the literature. In hopes to critically challenge some of them, I introduce an alternative view below. I restrict my discussion to parietal art only for several reasons: There are differences between the

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representation of subject matter of rock art and mobiliary art which reflect differences in their immediate contexts of production and use. In addition, we control better the chronology of mobiliary art presents than of parietal art. While I focus on Cantabrian art, I suggest that many of my observations are applicable to Paleolithic parietal art as a whole.

Temporal Variability in the Subject Matter of Parietal Art

Some authors study the subject matter in Paleolithic art synchronically, without taking into account the chronology of the entire tradition. This denies a historical dimension to Paleolithic art and negates the dynamics of change throughout the thousands of years of its development. Many critics, among them Ucko & Rosenfeld (1967), Layton (Layton 1977, 1991), Conkey (Conkey 1985, 1987), agree that various "artistic traditions" could have appeared and disappeared during the long course of the Upper Paleolithic. This suggests that general conclusions about all of Paleolithic art without considering its temporality are gross oversimplifications. If we consider artistic representations to be extensions of human activities, we cannot discuss any change through time while assuming that the art remained invariable.

If we divorce the study of art, or of its themes from the study of other human activities, we assume that "artistic forms" can be analyzed apart from economic and social domains of human existence (and *vice versa*). In such a case, the "artistic forms" take on a phenomenological, not substantive, status. Specifically we think we can understand their function and changes in those functions independently of the behavioral context. From such a perspective, the disappearance of parietal art at the end of the Upper Paleolithic becomes a simple anecdote or a coincidence in time, one of no import for understanding the system as a whole.

I have argued elsewhere that, in studying prehistoric societies, we cannot decouple the economic system from the social structure or from material manifestations of ideology (*i.e.*, art). All are integral to the structural web that defines those societies. Because of this I have argued that the lack of concern with these communities during the transition from the Upper Paleolithic to the Mesolithic avoids the very important problem of the disappearance of art, specifically the disappearance of the material evidence of a long-lived ideology (González Morales 1991:212). Temporal changes in the subject matter of this rock art have particular relevance to this debate because:

> "The contradictions that emerge in the Cantabrian Magdalenian between the parietal and the mobile art indicate how supposedly ritualized art forms (those found in sanctuary contexts) retain a more conservative expression of content, while others, related to mundane (*e.g.*, objects in daily use), seem to reflect much more directly their thematic (in good part, productive) content." (González Morales 1991:215)

In this paragraph I am arguing that, when the faunal records from archaeological sites (Altuna 1972; Straus 1977) are given a temporal dimension and then correlated with the parietal figures, the difference between the fauna depicted in the art and that present at sites tends to vary over time. This suggests that those species which were the core subjects (bison/aurochs and horses) were the most important to the subsistence base at the beginning of the Upper Paleolithic, and perhaps reflected myths which lay behind them. This core persists, with variations and additions of complementary elements, until the very end of the Paleolithic, when hunting became specialized around other species – red deer in Cantabria, reindeer in the Pyrénées and the

Périgord, and ibex in certain mountainous areas. This shift in fauna depicted *vs.* exploited shows us that the subsistence base diverged further and further from the species at the center of the Late Paleolithic ideological universe, as represented in the art. The divergence between taxa exploited and those possibly important to the traditional myths, which were increasingly ritualized and divorced from the "real world," seems to be magnified through time. I suggest that this divergence between and ritual must have figured centrally in the final crisis which caused the abandonment of the great tradition of Paleolithic parietal art.

As noted, the correlation between what was hunted and what was depicted depends on time. To study it we first need to establish a firm chronology for figures and compositions and to correlate this chronology with the faunal record from the sites. Furthermore, we should also consider the social requirements associated with different hunting strategies.

In order for this study to be objective, however, we first need to specify the types of subjects depicted, their chronology, and their relation to subsistence evidence at each point in time. This task is far more complex than it appears. First, there are particular problems in documenting Paleolithic parietal art. In the Cantabrian region, this documentation is often based on research dating to the beginning of this century, which relied on a methodology very different from contemporary research. I discussed this problem several years ago (González Morales 1989), and showed that earlier techniques of observation and recording, the criteria of identification, and the inventory of subjects depicted in the parietal art are less than reliable when compared to those used today. In spite of this, many of the conclusions and observations presented in the literature are based on these earlier observations.

Bases of the Traditional Systematizations

Most of the studies dealing with the subject matter depicted in Cantabrian Paleolithic art tend to follow the same kind of analytic scheme: 1) first, presenting a count of animals represented which are considered to be the most fundamental aspect of the art; 2) then presenting a separate count of anthropomorphic figures or images of questionable attribution; and finally 3) offering a separate count of signs. This organizational strategy cuts across other analytic techniques, such as those dealing with chronology or with the methods of production. The result of this approach leads to a model where the actual representations seem to be produced by the accidental intersection of the other suites of variables, which are thus seen as totally independent of each other.

For example, a deer figure is considered primarily a deer figure, and the fact that it is a deer and not a horse or a quadrangular sign is what is considered most relevant. Other variables, such as whether this deer is painted in black or red, with filled spaces or in outline, or is executed in one technique or another, or corresponds to some chronological period or "stylistic phase," or is painted in one physical position or another, are all seen as less relevant. Such a hierarchical organization of elements crosses the tenuous line separating "subject" from "meaning," especially when done in order to determine "meaningful compositions" and treat them statistically (which, which few exceptions, means simple percentages). In such an approach we clearly assume that we are dealing with "meaningful sets" of figures, and not with figures as isolated entities.

Conclusions about the subject matter of all Paleolithic art, which fail to take into account all of these other variables – especially time – are problematic and foster even more erroneous generalizations, if only because of the accumulation of errors.

While in this chapter I do not address all problematic assumptions used in the study of the subject matter of Paleolithic art, I next turn to some of the more seminal ones. First, we have a lack of consensus in the definitions of some terms, especially "subject," "motif," *etc.* Loosely speaking, we understand "subject" to be that which the figures represent. This connotation, however, requires further clarification. Subject-as-representation makes an immediate connection between the materiality of the figure and some element of the "real" or "imaginary" world which we take to be the "model" or "inspiration," in the sense of Laming-Emperaire (1962) and Leroi-Gourhan (1963). Here we encounter one of the most common pitfalls of evaluating a set of "subjects" at a particular Paleolithic art site: Assuming that the subjects-as-representations themselves maintain a symmetrical relation with the "real world" models they depict, and assuming, at the same time, that they are organized according to their own logical scheme, independent of that reality. This happens, for example, when we draw inferences about the natural environment from a study of associations among animal figures, and in doing so assume that the associations are a direct reflection of the environment, while at the same time we consider that the relative spatial organization, or the presence or absence of certain specific subjects has an essentially symbolic significance.

Furthermore, when researchers identify parietal art "subjects," their very act of identification is a source of conflict. Ucko (1989) has underscored the inaccuracies and inconsistencies that typically accompany the attempts to identify specific animal figures and the high degree of subjectivity inherent in this process. Often, the strict identification of an "art subject" depends on the observer and not on that which is represented (Clottes 1989; Lorbranchet 1989). I address this point below.

Zoological Subjects and the "Real World"

One of the most common topics in the study of Paleolithic art deals with the relationship between that which was painted and that which was eaten, often done by researchers not familiar with the general study of rock art. These studies begin with subjective identifications of the species and with tracking these through time. This is done in spite of the fact that the assumed association between "hunted fauna" and "painted fauna," between the art and the faunal assemblages in the caves, is a tricky and a poorly understood one. Some of these scholars argue that Paleolithic artists generally painted things other than what they hunted and see this as an essential quality of their art (*e.g.,* Altuna 1983, 1994; Criado Boado & Penedo Romero 1989; Rice & Paterson 1985, 1986). These studies ignore variability through time. Since we have considerable changes in environment and in parietal art throughout the Upper Paleolithic, it is impossible to generalize about the total time span from a single moment, and *vice versa.*

Second, when looking at the association between art and food, we need to define precisely what unit of measurement we are using. To do so using the proportions in the number of animal bones is as different from looking at the minimum number of individuals (MNI), as it is from considering the meat weight represented by those individuals. Even when looking at meat weights as reflecting the relative economic

importance of the taxon, we still don't know how this can be associated with the quantitative identification of the animals depicted.

Next, the sites on hand represent only a fraction of the landscape occupied by human groups. Faunal remains found in a specific level of a specific cave reflect only a segment of the groups' activities. Logic dictates, therefore, that the scale of analysis of the associations between art and food needs to be done on a broader geographic scale that a single site.

The same logic also dictates that chronological scales used in such research must be more finite. Although many scholars recognize the problems with considering all Paleolithic art as a homogeneous global phenomenon, they nonetheless do so in most of their works (Criado Boado & Penedo Romero 1989; Rice & Paterson 1985, 1986). In discussing the degree of similarity or difference between "real world" species and the art, bisons are cheerfully lumped with horses, red deer with hinds, reindeer with mammoths – all without taking into account the differential temporal distribution of these different representations. Such a loose quantitative view, one approaching Paleolithic art from a synchronic perspective, emphasizes "structure" instead of change. The effect of this is to neglect or dismiss the fact that Paleolithic art is a phenomenon of great temporal depth where the very changes in the art and their relationship to social transformations experienced by the artists are central – not peripheral – to our understanding of the art.

The lack of congruence between food and art can be seen at Altamira. A quantitative analysis of the faunal remains recovered differs considerably from the animal figures represented in the art (primarily bison). The Magdalenians occupying the site, however, left behind a faunal inventory dominated by red deer (proportions of remains). Using MNI-based meat weights rather than proportions, however, shows the dominance of bison and horse (González Morales 1994). This exercise shows that you can reach different conclusions depending on how you count.

Furthermore, we bring subjectively to such "calculations" by our inherent assumptions that the "importance" or cultural significance is synonymous with the number or numeric relevance of the things being counted. When we look for proportional similarities or differences between hunted fauna and painted fauna, we adopt modern criteria of quantification, that is, that the importance of a species is always measured by the number of individuals represented, not by its position, its size, or its possible symbolic relationship to other decorative or auxiliary elements. Yet ethnographical data clearly show that there is a high degree of variability between quantitative representation and cultural importance (see Rosenfeld, this volume).

In this discussion my intent is not to argue for absolute relativity. I believe, for example, that the cooccurrence of particular depictions of painted animals throughout the entire sequence of Upper Paleolithic art – like bison/aurochs and horses – is central to its interpretation. Rather, what I question is the possibility of making sound associations based on solely quantified correlations – ones that assume that they convey equivalent symbolic values.

In sum, my response to the question of whether or not animals good to eat were also good to paint is a qualified yes: The art primarily portrays terrestrial ungulates that were actually consumed by humans. I would qualify this yes, however, with two points: 1) this generalization is valid for all Paleolithic cave art, but without any strict numeric equivalencies; and 2) this relationship between food and art seems to have been continually modified throughout the Upper Paleolithic. As I and others have argued elsewhere, this was more true during the earlier phases than the later ones

(González Morales, 1991; González Sainz, 1989), even with individual exceptions like Grotte Chauvet and its very early dates, according to preliminary results .

Animals and Signs: "Mundane" or "Ritual"?

Our ideas about the subject matter of Paleolithic art often presume its "nonmundane" character, the scarcity of representation of human behavior, of tools and of weapons. Paleolithic art is described as essentially "animalist." This aspect is taken for granted by many and warrants little discussion. As noted above, in discussing art motifs we inevitably fall into the trap of beginning with the animal figures themselves, and center our discussion around them. Doing so ignores another category of subject matter which, at least in quantity, equals that of animal representations – namely signs. In recent years, there has been a tendency to consider abstract and geometric signs as nonfigurative elements in a strict sense, and to see them as opposed to the world of animal figures. From this we infer that they are "nonrepresentational" in character and infer a lack of association between the signs and objects or beings in the real world.

If, however, we reexamine analytic work prior to Laming-Emperaire (1962) and Leroi-Gourhan (1971), we find abundant discussion of a variety of hunting tools as well as animals killed with different types of spears and traps. It is these two scholars who initiated a change in theoretical perspective, one which ignored a consideration of artifacts used in daily life and overemphasized the variety of figures supposedly derived from the schematization of the masculine sex ("open" or linear motifs) and of the feminine sex ("closed" or "full" motifs).

There is clearly some circularity of reasoning pervading some of our common attitudes about the relationship between "figurative subjects" and "abstract subjects" in Paleolithic art. The rare number of explicit human representations argues for a system where the "natural world" was the focus of attention. The absence of human figures suggests that human activities are not represented in parietal art. This leap of faith leads us to search for alternative, symbolic meanings for the figures that, without this prejudice, may have explicit and straightforward meaning, which, in fact, it frequently does in the eyes of the "uninitiated" observer. For example, in the case of Spanish Levantine art, the lines over animals can been seen as a "naturalist" representations of projectile points, and in Paleolithic art as "abstract signs." Which interpretation one prefers clearly is determined by one's theoretical viewpoint and not by the actual representations.

Thus, the idea that the Paleolithic "signs" do not represent commonly used objects results from preexisting theoretical biases about the meaning of the art. Such an assumption depends on our ability to adapt our contemporary Western visual reading codes to interpret representations executed within a very different context. It also depends on our limited ability to recognize possible artifact forms in the art which, due to a variety of postdepositional processes, no longer exist in the archeological record.

Bahn (1986) and more recently Mithen (1988, 1990, 1991) see an association between the signs in Paleolithic art and daily hunting activities. In this they reject the interpretation of the signs as abstract representations. Their "naturalist" identification of the signs, however, is different. In their works we find an extension of the idea that Paleolithic art is essentially linked to representations of animal figures, now broadened to include parts of those animals, such as their footprints. The reinterpretation of "vulvae" as animal footprints, however, is not novel but an extension of research of

Bourdier (1967:272) and Gómez-Tabanera (1971) using ethnographic data. Bahn (1986) challenged the equivocal identification of a series of Paleolithic signs as representations of the female sex. For example, citing different contexts in which similar-looking forms, ones systematically considered "vulvas" in Paleolithic art, are understood as, among other things, animal footprints across various kinds of ground surfaces. In doing so he called attention to the subjectivity inherent in one identification of signs in Paleolithic art.

Using the idea that much of the abstract signs mark calendaric events or note seasonal changes, Marshack (1972) has identified certain signs as probable representations of plants or other mundane objects such as traps. Recently, Mithen (1990, 1991) went one step further. Within the context of a general interpretation of Paleolithic art as a system for collecting and transmitting strictly practical information about hunting, he interprets many signs as animal footprints, as strings of footprints, prints surrounding vegetation and so forth. My primary objection to Mithen's work is his neglect of time: He considers all parietal art to have been endowed with the same meaning and function for more than 20,000 years.

Although many of these hypotheses that signs as related to objects or practical seasonal activities are problematic, if not impossible to verify, they serve to illustrate the lack of agreement among researchers about the abstract nature of the signs and their exclusive association, as per Leroi-Gourhan (1971) with male and female sexual organs.

The earlier tradition also diverges from contemporary research in the classification systems used. Layton (1987:24-34) has shown how, in the European tradition, one can distinguish two different ways of approaching the problem of signs and of the figures which do not strongly suggest a natural model. Some researchers assume that the signs had some meaning and assume that the artist intended to convey it. Others tend to group series of signs together because they appear to have the same meaning to the researcher, but not necessarily the artist. The first is an "essentialist" perspective, the second, explicitly "formalist." The two typically are not distinguished by many researchers and one is left with an impression that vacillates between both perspectives without ever achieving a critical analysis of the change in viewpoint.

Signs Without Animals

The above discussion also raises another basic issue – that of defining Paleolithic art as a naturalistic art, essentially comprised of animal subjects accompanied by signs. In actuality, there are whole sets of depictions in which only signs appear without any associated animals, and many others where it is not possible to know if the signs really accompany the animal figures or were painted as isolated, independent groups. This is especially apparent on the Cantabrian coast of Spain, where sometimes we find only signs depicted in painted caves. These signs are not just isolated representations but sometimes appear in complex compositions – as Entrecueves, La Herrería, Balmori, El Tebellín and Mazaculos in Asturias or as Fuente del Salín and Santián in Cantabria. In other cases, panels of signs alternate with animal figures, showing differences in the methods of execution as well as composite superpositions.

Such a variability in the associations between animal figures and abstract signs makes one consider the situations where signs were exclusive, or numerically dominant in the composition. When we assume, *a priori*, that the signs accompany the animal figures and are limited to a secondary role, rather than the animal figures

accompany the signs, it is just one more example of oversimplification. Our finite ability to identify the signs and our biases that the "predominance" of animal figures represents the very core of Paleolithic art, make the cases of compositions without signs aberrant if not incomprehensible. This, again, reflects the subjectivity of our viewpoint. Layton (1987:23-38) has noted that many archaeologists working with Paleolithic art believe that the "interpretational quality" of the figures is transparent and that they are easily classified into "motifs" which signify bison, horse or deer. Some, however, depending on the amount of information in the figures, are more transparent than others. The problem with signs, on the other hand, is that many of them had to convey enough information so that the artists and their contemporaries could identify them, but convey little information to us. This needs to be coupled with the possibility that ambiguity was intended to begin with.

Thus we have today a situation where signs are formally defined by exclusion: A type to which we assign everything that does not seem to be "animal," "human," or "anthropomorphic." Beyond this there is no unanimous view about the figurative or abstract nature of many of signs, and thus of the role they play in the compositions – whether if they accompanied other figures or were entities with their own organization.

Temporal Variability of the Signs

Leroi-Gourhan's (1971) stylistic chronology rests, in part, on the temporal distribution of the parietal signs. This has been widely accepted by the majority of continental researchers and recent chronometric dates for parietal art seem to confirm the essential correctness of that chronology. At the same time, Leroi-Gourhan (1980) emphasized that the great signs, at times, tend to have a limited geographic distribution. This led him to suggest that such signs were "ethnic markers," linked to territorial groups. This hypothesis is a significant one, which I turn to below.

The first salient point is that the regionalization of the signs does not seem to be stable in time but shows clear diachronic variability. In the Early Upper Paleolithic the signs do not show precision or regularity in form. At the same time, certain mobiliary art "subjects," such as the so-called "Venuses," show a wide distribution throughout all of Europe, from the Pyrénées to Central Europe. Gamble (1982) has interpreted this as a widespread transmission of information regarding these artistic forms and, possibly, the ritual or symbolic practices associated with them.

As Jochim (1983, 1987) noted, the climatic deterioration, which culminated in the glacial maximum around 20,000-18,000 BP, must have caused a concentration of human groups (or persistence vs. extinction, as pointed by Gamble [1991]) in the southern latitudes of Europe. Jochim linked this phenomenon with the development of Paleolithic parietal art. The increase in Solutrean sites in the Cantabrian region, compared to those dated to the Early Upper Paleolithic, seems to parallel significant increase in the number of caves containing parietal art, as well as a greater complexity in the painted compositions. In addition, there is also an increase in the use (see Clottes, this volume) of interior spaces of the caves isolated from the external areas of daily use. Furthermore, the most complex signs become formalized at this time and show a clearly regionalized distribution.

Neither of these phenomena can simply be attributed to an increase in the number of habitation sites, as would occur, for example, if there were an increase in the number of painted caves. Instead, they may be related to changes in the behavior of human groups, such as changes in the use of resources and territories due to competi-

tion and negotiation with other human groups. Such complex social negotiations could stimulate the use of parietal art as a medium of differentiation, giving it an ever more ritualized character. This ritualization could have been expressed 1) by the removal and separation of the painted and engraved walls from habitation areas, relegating the art to the dark interior of the caves; 2) in the tendency to focus on an iconography centered around a subject matter inherited from the earlier Upper Paleolithic; and 3) in the numeric and positional importance that signs gradually acquire, leading to their being represented independently of the animals.

In the Cantabrian region the progressive "concealment" of the parietal sanctuaries is manifest in compositions ascribed to Style III – within a general Solutrean chronology – and not to the beginning of Style IV, which Leroi-Gourhan (1971) proposes on the basis of the chronology of the great exterior bas-relief friezes (absent in Cantabria). If the above hypothesis is correct, the early occurrence of subterranean sanctuaries on the northern Spanish coast, together with the lack of development of later exterior compositions may be related to competition for resources and social interactions in a more circumscribed topographic and ecological environment.

Later in the Upper Paleolithic, during Leroi-Gourhan's style IV, the Cantabrian signs seem to yield their central role to the great animal figures, which are again found near the inhabited mouths of the caves (La Pasiega B, Castillo and Altamira are examples of differential distribution within a single site). At the same time we see an increasing divergence between mobiliary and parietal subject matter and between parietal subject matter and hunted fauna. The latter is primarily due to the occurrence of ibex in some areas. At this time there is also an increase in the number of mobiliary art works compared to the number of parietal art works. In spite of the discussed dangers of associating art with food, the data do seem to indicate that artistic behavior reflects changes in the forms of social organization and the systems of resource exploitation. The changes are archaeologically reflected in: 1) the increase in importance of food gathering; 2) the reduction in the mobility of human groups at the end of the Magdalenian, evident from raw materials used and from the use of other resources (González Sainz & González Morales 1986). On a continental scale they also include the progressive colonization of new territories spreading from the Pyrénées to northern Europe and Great Britain, and the disappearance of animals which formed the subsistence basis, such as reindeer, and their replacement with nonmigratory species whose procurement implied reduced mobility. All these changes suggest either a decrease in competition or a decrease in periodic aggregations as a mechanism of large-scale social organization. The culmination of this process seems to lead to the rapid disappearance of parietal art and of all the abundant animal imagery represented in the caves. This is shortly followed by almost total disappearance of figurative mobiliary art.

Conclusion

I have discussed elsewhere my hypothesis about the end of Paleolithic art (González Morales 1991). These findings are at the basis of my discussion here. My current brief review of some issues pertinent in the study of parietal art represents a series of probes into the problems inherent in the very definition of the content of parietal representations and their relationship to the spheres of economic behavior and social organization. I conclude by noting that traditional analyses allow us to extract only a few secure generalizations and that we need to develop new methodological

approaches in order to deal with these questions. These need to be developed, however, with the cognizance of the limitations inherent in earlier analyses and of the level of subjectivity inherent in them.

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Section III

Interpreting Regional Imagery in the European Upper Paleolithic

Art of the Light and Art of the Depths

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Paleolithic rock art was first discovered at the end of the nineteenth century and the beginning of the twentieth in deep caves such as Altamira, Marsoulas, La Mouthe, Font-de-Gaume, Combarelles, Bernifal, Gargas and Niaux. Because of these first discoveries, Upper Paleolithic rock art was associated with the dark and is still commonly called cave art (see *L'Art des Cavernes* 1984). However, a number of caves with engravings in the entrance, where they are more or less exposed to the light, had been found in roughly the same period: Chabot in 1889, Pair-non-Pair in 1896, Teyjat in 1903, Le Figuier in 1906, Oulen in 1907 and Huchard in 1908. In subsequent years, bas-reliefs were discovered not in caves but in shelters: Cap-Blanc in 1909, Laussel in 1911 and Le Poisson in 1912. Despite these early finds, the image of this art as belonging to deep caves has persisted, and it has taken a long time for specialists to begin considering possible reasons for the choice of such different locations.

Breuil just mentions the question: "Other sites such as Cap Blanc, the Roc de Sers and Angles are open and inhabited places. We cannot say if these were less sacred than the others, or if there were not many more. The open sites may have been more numerous than we think: usually they have perished, while the deep galleries lie protected" (Breuil 1952:23-4). In these few words, in addition to acknowledging the existence of art in the open, Breuil introduces three problems, each of major importance: 1) the shelters or cave entrances were often inhabited; 2) different values may have been attached to the art according to the type of location; and 3) the question of what we would nowadays call the taphonomy of Paleolithic rock art.

However, it was not until 1962 that these problems were dealt with in depth. Laming-Emperaire divided Paleolithic rock art into two groups, which she thought distinct as to location, geography, techniques and themes. According to her, rock art in shelters or in the entrances to caves consisted largely of sculptures (Figure 1) and deep engravings, whereas fine engravings and paintings were the techniques most often represented in deep caves – with the very few exceptions noted in a footnote (Laming-Emperaire 1962:187, note 1). At the very end of the Paleolithic, some fine engravings were done in entrances, such as at Teyjat or at Sainte-Eulalie. The "out-

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side" group consisted mainly of sites to the north of southwestern France, while the "deep cave" group consisted of sites to the South. Despite drawing on the same traditional sources and showing a deep unity in their inspiration (p. 293), themes differed between the groups: Unlike the deep caves, a fair number of humans had been depicted outside, and the animals there were never accompanied by arrow-like signs. Geometrical signs were in fact absent, as were composite beings. Laming-Emperaire hypothesized that in the deep caves, the artists had wanted to portray the relation of animals to one another and in the entrances, the relation of men to animals. She also stressed the frequent presence of habitats next to the works of art in shelters and entrances (Laming-Emperaire 1962:196-7).

Leroi-Gourhan also devoted much thought to what he considered as two distinct categories of sanctuaries, those under shelters or in the entrances to caves and those in the dark (Leroi-Gourhan 1965:114). He wrote that the use of deep caves was one of the characteristics of his Early Style IV during the Middle Magdalenian. Then, with the Late Magdalenian and the Late Style IV, "the great period of deep sanctuaries comes to an end and wall art can again be found next to the entrances" (Leroi-Gourhan 1965:42; see also 1965:73, 77, 156, 316, 319). He thus saw differences in choice of location as being characterized both culturally and chronologically. The first period, from the Gravettian to Magdalenian III, and the last were ones of art in the open. As for sculpture, he thought it was for practical and technical reasons, such as the long time needed to carve large figures out of rock, that they were only produced outside (Leroi-Gourhan 1965:114). Contrary to Laming-Emperaire, in his opinion there did not exist much thematic difference between the art in the dark and that in the light (1962:115).

Thirty years after the pioneering work of Laming-Emperaire and Leroi-Gourhan, many more discoveries have been made and the art is far better known with regard to chronology and archaeological context. As a result, it has become possible to test their remarks on this important question against examples from all of France.

FIGURE 1. Woman in bas-relief in the La Magdeleine shelter (Penne, Tarn). Photograph by A. Serres

Rock Art in Shelters and in Caves, According to the Different Areas and Periods

Since *L'Art des Cavernes* was published in 1984, a number of new sites have been found or newly studied. To that list can be added: *North of Périgord*: La Grande Grotte d'Arcy/Cure, Le Réseau Guy Martin, Le Placard; *in Périgord*: Fronsac, Font-Bargeix, La Croix, Le Charretou, Vielmouly II, La Cave Pataud, La Cavaille, Le Trou du Taï, Le Trou de la Marmite, Puy-Martin; *in Quercy*: Mazet; *in the Pyrenees*: Campome, Gourdan, Montconfort, Enlène; *in the southeast*: Cosquer, Deux-Ouvertures, Aiguèze. The total has now reached 149 sites.

In the following table, these sites have been classified according to the different regions and periods. Such a table entails the oversimplification of a complex picture with regard to the distinction between art in the dark and art in the light, as well as geographical locations and chronological attributions.

When dealing with a cave like Niaux or a rock shelter like Angles-sur-Anglin, everything is simple. However, there do exist caves which are covered with engravings right from the lighted entrance to far inside the deepest galleries. In such cases, which occur three times in Périgord (Comarque, Bernifal, Saint-Cirq), twice in the Pyrenees (Marsoulas, Gargas) and once (Oulen) in the southeast, the caves have been listed in both the "Light" and the "Dark" columns. In other caves, most of the art is in the dark, and so the site has been listed as "dark," even though there may exist one or two petroglyphs in an area still reached by dim light (Croze à Gontran, Roc de Vézac, Cassegros, Bayol, Marcenac).

A possible source of error lies in the changes that entrances to caves may have undergone in the course of time. At present, thick vegetation may grow outside a cave and obscure the gallery, especially if it happens to be low, while in Paleolithic times the light may have penetrated much farther in. In other cases, it is simply not known where the original entrance to the site was, since it became blocked after the cave was decorated (Gravettian Gallery in Les Trois-Frères). Even when such a blocked entrance can be determined (Fontanet), there is no way to know whether, at the time the cave was frequented, the opening was large enough to let in the light, in which case the nearest paintings would have been done in the light; or whether, as we now assume, the scree that eventually closed the entrance entirely had already started and just a small passage for crawling remained, in which case all the paintings were done in the dark.

	Light	Dark	I-II Light	I-II Dark	III Light	III Dark	IV Light	IV Dark	Final Light	Final Dark
Nord	9	5	0	1	3	1	4	2	1	1
Périgord	33	27	12	10	8	10	5	15	2	4
Quercy	8	18	0	4	2	10	4	7	1	1
Pyrénées	7	25	1	3	0	1	6	22	0	1
Sud-Est	8	13	0	1	6	7	1	3	1	0
Total	65	88	13	12	21	27	20	49	5	7

It has been expedient at times to lump together sites which are very far apart. Included in the "North" group are all the sites north, west and east of Périgord, which may not have much in common but are too few and scattered to allow for separate categories. Included in the Quercy group are the two known caves in Limousin. On the other hand, the caves of the Southeast include the Aude-Hérault sites which show distinct cultural affinities with the Pyrenees.

The problems are even greater when it comes to chronology, as most caves and shelters have been assigned to a particular time or culture only through arguments based on stylistic criteria, mainly in reference to Leroi-Gourhan's scheme (Styles I-II, III, IV) to which was added a column for the Final Magdalenian. Such "dating" is largely hypothetical and the figures in the table are nothing more than a rough estimate. When a cave gives evidence of more than one period in its wall art, it has then been counted more than once.

The first result comes as a surprise. Art in the light is just slightly less frequent (42.5 %) than art inside deep caves (57.5 %). This runs counter to the prevailing impression that art in the open is far more rare than cave art because most of it has been destroyed by natural and other causes, and that what is left constitutes "exceptions," however "notable" (Bednarik 1993:4). In this same article about European Ice Age rock art, Bednarik mentions "its restriction to caves" and goes on to challenge the idea of "cave art" "because it generally survived only there" (1993:4).

The taphonomy of European Upper Paleolithic rock art is not a new area of interest. It has been considered by researchers working on the subject ever since Breuil (Breuil 1952:24; Laming-Emperaire 1962:186), although nowadays more attention is being paid to the question (Bahn & Vertut 1988:111-3; Delporte 1990:56-7).

In France (Campome), in Portugal (Mazouco, Foz Côa) and in Spain (Domingo García, Carbonero Mayor, Siega Verde) (Ripoll López & Muncio Gonzalez 1994), recent discoveries of engravings not only in shelters or in caves but also on rocks out in the open, show that it is possible for Paleolithic petroglyphs to have survived in fairly exposed locations. Obviously, paintings are a different proposition. They can only endure in sheltered locations, making them much more vulnerable than rock art of any other technique and so many were probably destroyed.

On the other hand, caves are certainly not museum-like places where wall art was always perfectly preserved. Wall surfaces can be ravaged by natural causes such as flooding (about two-thirds of the Cosquer Cave near Marseille), or by water seeping through cracks and dissolving pigments (Niaux in 1978-1980), or by calcite covering huge surfaces, or even by drafts. For example, it will never be known whether the absence of art in the first 400 meters of Niaux (Clottes 1995) and in the front part of Pindal is due to cultural choice or to natural phenomena. The latter could very well be the case, at least for Pindal, since it is directly open to sea winds. It should also be kept in mind that many cave entrances have been blocked by scree or by collapses and so remain undiscovered. In the Tarascon-sur-Ariège area, two (Fontanet and Réseau Clastres) out of six known caves have blocked entrances and were explored through an access that could not have been used by the Magdalenians. In the case of Fontanet, the prehistoric entrance is concealed by an extensive scree. Similar screes can be seen at the bases of dozens of cliffs in various valleys around Tarascon-sur-Ariège, perhaps concealing a surprising number of caves.

To postulate then that rock art in the open must have been the norm, since most of it has disappeared, and that compared to this worldwide phenomenon, cave art was a sort of side event, would mean taking the stance that the destruction of outside sites was far more frequent than that of caves. This is possible but it remains a supposition until in-depth geological and taphonomical studies are undertaken, assuming they are feasible.

The finding that rock art sites in the light are nearly as numerous as those in caves can therefore be interpreted in two different ways. It can be argued that it provides grist for the mill of those who are persuaded of the prime importance of open-air rock art. Then it would just be a closer look at the remains of a widespread phenomenon.

On the other hand, it might be said to show that petroglyphs can be preserved whatever their location, not just bas-reliefs and deeply-etched works, but even very fine engravings, such as at Campome or at Domingo García.

If the rock art sites known today represent a hopelessly biased sample because of the destruction of a large number of open-air sites as compared to the relative preservation of caves, one should find roughly the same proportion in each type of location whatever the period. From the table above it is clear that this is not the case. The numbers of sites are about equal (13 and 12) for the earlier art (Leroi-Gourhan's Styles I-II, corresponding to the Aurignacian and Gravettian), for Style III (mostly Solutrean: 21 and 27) and for the Final Magdalenian (5 and 7), but change to a ratio of nearly one to three for Style IV (Middle and Upper Magdalenian), with 20 sites in the light (30%) and 49 in the dark (70%).

The phenomenon is also space-related, since the largest difference occurs in the Pyrenees (7 sites in the light and 25 in the dark). Because in the Pyrenees the earliest and latest sites are few, it is impossible to see whether the larger number of deep caves with rock art is due only to the availability of caves at all periods or to a cultural choice made during the Middle Magdalenian. However, this is something that can be confirmed in the other groups, by removing the Pyrenean sites from the total. In that case, the results hardly change. The overall relation of light to dark approaches one to one, with still a slight advantage to the caves (48% and 52%), but more importantly, a strong difference persists for sites attributed to Leroi-Gourhan's Style IV: 14 in the light (34%) and 27 in the dark (66%). This is not that far from the overall total with the Pyrenees included. The inescapable conclusion is that, just as Leroi-Gourhan had argued, people during the Middle and perhaps the Final Magdalenian made a cultural choice to paint or engrave in deep caves more often than ever before or after. That choice is more clear in the Pyrenees where a larger number of deep caves were available.

Even during that period, however, the Magdalenians never stopped using rock shelters and cave entrances for their art. Conversely, dark caves had always been used in earlier times: the oldest radiocarbon date obtained so far (27,110 BP ± 350 ; Gif A 92,491) is from a stenciled hand in the Cosquer Cave, very far back from the entrance (Clottes *et al.* 1993). Recently, still older dates, ranging between 30,340 and 32,410 BP, were obtained for three paintings very far inside the Chauvet Cave (Clottes *et al.* 1995).

Some Aspects of Art in the Light

Bas-reliefs are not very numerous in French wall art: 18 are known at present. They range through the Aurignacian (Bernous, Blanchard, Castanet), the Gravettian (Poisson, Laussel, Pair-non-Pair), the Solutrean (Cave Pataud, Fourneau du Diable, Roc de Sers) and the Magdalenian (La Magdeleine, Angles-sur-l'Anglin, Cap Blanc) (Delluc 1989, Roussot, 1989). They are to be found in all the geographical groups, except the southeast: Angles-sur-l'Anglin, Chaire à Calvin, Roc de Sers are to the north and west of Dordogne; Cap-Blanc, Cave Pataud and others are in Périgord; Pair-non-Pair is in Gironde, La Magdeleine is in the south of Quercy and Isturitz is in the Pyrenees. Beginning with the earliest wall art, then this technique was used in all periods and in most locations.

Both Leroi-Gourhan and Laming-Emperaire stressed the fact that bas-reliefs were carved only in shelters and never inside deep caves. According to Leroi-Gourhan

(1965:114), this was probably because of the technical difficulties the artists faced (1965) and the long hours needed to finish a sculpture. This practical type of explanation may or may not apply to people who must have had a concept of time very different from ours. We do know, however, that they had mastered lighting, using torches and grease lamps, and so could remain inside a deep cave for as long as they chose (Roussot 1989:68). Moreover, in Comarque, a few bas-reliefs were done in complete darkness, even if near the entrance, so this was in fact feasible.

In certain cases, sculptures are held to have been done in the light even when this is far from certain. For example, in Isturitz the sculptures are 35 meters from the entrance and are at present in the dark. However, it has been suggested that they still might have been reached by daylight *if* the entrance at the time was wide enough (Roussot 1989:52). What is certain is that bas-reliefs on walls were carved near entrances, whether or not they were in the dark at the time. Practical considerations provide one kind of explanation but are not the only possibility. There may have been religious taboos or even long-standing habits ("We do it this way because this is how it has always been done, and so this is how it must be done"). The clay bas-reliefs are something else again, since they have been found in only a very few caves (Montespan, Bédeilhac, Tuc d'Audoubert) deep underground and restricted to one area (the Ariège Pyrenees) and one period (the Middle Magdalenian).

Fine engravings in entrances and shelters are no longer as unusual as they were thirty years ago. Important sites such as Le Placard in the Solutrean or Gourdan in the Magdalenian had entire walls covered with them (see also La Roque, Roc d'Allas, Montconfort, Marsoulas, Sainte-Eulalie, Colombier II). The only art on a rock completely out in the open (Campome) is engraved with very fine lines. Neither this technique nor art in the open is restricted to the final phase of the Magdalenian, as Leroi-Gourhan mistakenly assumed: Sainte-Eulalie, in Leroi-Gourhan's time believed to be Magdalenian VI, has since been shown to be Magdalenian III (Lorblanchet 1973). Colombier II, a shelter with fine engravings, has now also been assigned to an earlier date (Middle Magdalenian) than had been thought (Onoratini, Combier, Ayrolles 1992).

Art in the open was carried out, then, at various periods using different techniques, including painting (paintings or very faint traces of paint have been discovered in several shelters or cave entrances, such as Laussel or Le Placard). If bas-reliefs are consistently found either in the light or not far inside caves, which somewhat sets them apart, as Laming-Emperaire had rightly argued, her other remarks about the unique nature of art in the light compared to cave art from the point of view of themes and meaning, already criticized by Leroi-Gourhan (1965), have not been borne out by the findings of the last thirty years. The themes (animals, humans, signs) chosen by the artists do not vary that much whatever the location of the art or the technique used (Roussot 1989:65-67), and so it is unlikely that the concepts that informed them should have been fundamentally different.

Since Breuil and especially since Laming-Emperaire, all authors have mentioned the fact that rock art sites in the light almost always occur next to habitats. Whenever properly excavated, archaeological layers in the immediate vicinity of the works of art are exactly the same as those elsewhere. Whatever the significance of the art, this means that whole groups lived everyday lives with their usual activities next to the bas-reliefs and/or engravings and paintings (for example, Le Placard [Figure 2], Gourdan, Gargas), whereas in deep caves such evidence is scarce (*e.g.*, Bédeilhac, Labastide) and often points to short visits by small groups of people selected on some basis we can only speculate about (see Niaux, Le Tuc d'Audoubert, Fontanet,

Cosquer). This indicates a significant difference in the way art in the light and art in the dark was thought of at the time.

Another significant difference has gone largely unnoticed until now. In deep caves, the art is almost never defaced, which is why Leroi-Gourhan mentioned "the respect that people of the Paleolithic bore for the images made by their ancestors" (Leroi-Gourhan 1965:140). At times, new engravings or paintings have been superimposed on earlier ones but without any destruction. The inference is that the images on the walls retained their power and that the surfaces on which they had been drawn also remained "sacred." One might even argue that superimpositions show that the importance attached to the particular cave walls where they occur did not wane over long periods of time (Combarelles, Trois-Frères). In inhabited shelters and entrances, on the other hand, the images on the walls were eventually covered over by sediment and accumulated refuse under which they completely disappeared. In Le Placard, for example, this happened to the main panel of engravings. The radiocarbon dates ob-

FIGURE 2. Le Placard (Vilhonneur, Charente) is a huge shelter. The walls have been engraved and painted over vast surfaces. The scaffolding is slightly above the lowest engravings, covered with black plastic sheets. Archaeological layers have accumulated against the walls. They have entirely covered the petroglyphs and nearly reached the roof of the cave. Photograph by L. Duport

tained for some breccia covering the engravings and for the archaeological levels pertaining to the period when the art was done are the same (Clottes *et al.* 1991), which means that the art lost its interest and value not very long after it was created. The exact time interval is impossible to ascertain because our dating methods are not precise enough: It could be a few years, a few dozen years or even a century or two. However, it is reminiscent of what the Magdalenians did with engraved plaquettes, which were mostly broken up, reused, or thrown away among the refuse. It has even been argued that their being broken up and dispersed was deliberate (Saint-Périer 1936:126, 127), a strong possibility given that this observation has been reported again and again, at Le Mas d'Azil, Lortet, Gourdan, Isturitz, Limeuil, Enval, Enlène and others (Clottes 1989). Engraved plaquettes were of temporary interest for their makers/users. It may well have been the same for art in the open.

Deep Inside the Caves

The preference for deep caves in the Middle Magdalenian is best exemplified by sites that had been lived in and painted or engraved at periods separated by many millennia, such as Enlène and Les Trois-Frères in the Ariège. Those two caves are next to each other on the same hillside and Les Trois-Frères can be reached through Enlène. The entrance to Enlène was inhabited for a long period during the Gravettian and for a shorter period in the Middle Magdalenian. Beyond the first forty meters or so, all the Paleolithic remains discovered in the depths of the cave are Middle Magdalenian only, right to the end, some 200 meters away from the entrance, where red paint has been smudged on the walls and where one big red dot and five vertical lines have also been painted. This means that the uses to which the same cave was put are very different. The Gravettians stayed in the entrance while the Magdalenians both lived and painted far inside, in complete darkness.

In Les Trois-Frères, some fires were built in the Chapelle de la Lionne and the Salle du Foyer during the Magdalenian, but there is no evidence for a long occupation at that time or before. The location of the wall art differs from the Gravettian to the Magdalenian. Gravettian engravings were all made in one gallery (Galerie des Chouettes), whereas Magdalenian engravings are found everywhere in the cave, even in far-off side galleries and in out-of-the-way recesses. An entrance now blocked may have existed to provide the Perigordians with direct access to the Galerie des Chouettes (Breuil 1952; Bégouën & Clottes 1984:401); in that case, the layout of Gravettian and Magdalenian engravings in Les Trois-Frères followed the same pattern as in their habitats in Enlène.

Before the Magdalenian, however, deep caves were occasionally used, such as Chauvet in the Aurignacian. Gravettians left stenciled hand prints, engravings and finger tracings throughout fairly extensive caves such as Gargas and Cosquer, which attests to a different frame of mind than the one glimpsed in the preceding examples. The Solutreans painted and engraved deep inside caves as well, for example at Cougnac, Pech-Merle, Cosquer and Oulen.

With the Middle Magdalenian, the main difference is that in a number of cases the creators of the art consistently explored mile-long caves, such as Niaux, Montespan and Rouffignac. They also crawled along very narrow passages (Massat, Le Cheval at Arcy/Cure), climbed avens (Tuc d'Audoubert) and precipitously narrow ledges (Trois-Frères, Etcheberri-ko-karbia), and even went down shafts several meters deep (Fontanet). These speleological feats (Leroi-Gourhan 1992:367) were accomplished

again and again during this one period in southwestern Europe. Even if the Paleolithic artists of western Europe were not the only humans to have dared to go far into the depths, as Leroi-Gourhan had supposed (1992:379) (see the Paleolithic caves in Australia, such as Koonalda), they are unusual in that they did it habitually, whatever the difficulties, and in this they are unique in world history until much more recent times.

It has often been noted that young children sometimes accompanied adults on such expeditions. Whenever Paleolithic footprints have been found in deep caves, they include children's footprints. Several authors, such as Bégouën, Breuil, and lately Pfeiffer, have argued that this was for initiation ceremonies. This idea is contradicted by the fact that some of these children were far too young: The footprints of a three-year old are preserved in Le Tuc d'Audoubert and the hand prints of a five or six-year old in Fontanet (Figure 3). The only conclusion to be drawn is that children were not barred from the deep sanctuaries, even when very few people seem to have made their way into them (Breuil 1952:23; Leroi-Gourhan 1965:123).

From their way of using the walls and from the choices they made far inside the caves, we can get some idea of the artists' considerations. For example, even if they did not use all the possibilities in a very extensive cave (Barrière 1982:187, about Rouffignac), most often they looked carefully for suitable panels with surfaces vast and smooth enough on which to draw and without too many cracks or too much calcite coating. In Niaux, at the entrance to the Salon Noir, red signs were painted at both ends. A similar structure made up of two panels of signs, only more complex with more numerous and varied symbols, exists at the entrance to the gallery leading to the Salon Noir (Clottes 1988-9, 1995). The panel on the right is as near as possible to the beginning of the gallery while the panel on the opposite side is a few dozen meters away from the entrance because closer to it no other surface was suitable. In this particular case, even though the Magdalenians wanted to create a sort of symbolic frame to the sanctuary, their choice of a suitable place came before their wish for symmetry. Lorblanchet (1981) cites another example. When he wanted to duplicate the Pech-Merle Frise Noire in another cave in order to study its composition and the methods used, he had a difficult time finding a suitable cave, despite being in an area (Quercy) where caves are numerous and their locations well-known. Did the Pech-Merle artists look as hard for a proper cave in which to work, or did they find it by chance and then turn it into a major sanctuary?

The question is made even more relevant by the fact that Paleolithic artists so often made use of natural outlines and reliefs in the caves. That they systematically did this runs counter to the structuralist theories of Laming-Emperaire (1962) and Leroi-Gourhan (1965), who thought that the artists had brought an existing schema to the caves and had drawn animals and signs accordingly. Closely and constantly searching for natural outlines stems from a very different outlook, since then the cave itself imposes the representation of a particular animal, such as a bird at Altxerri or an upright bison and the head of a cervid at Niaux.

The lighting techniques used at the time – torches or grease lamps that would cast a dim and fluctuating light – help to explain this practice. When such conditions are replicated, or even when visiting a cave with a candle, the walls seem to come alive with the moving shadows cast by the flickering flame. It becomes very easy then to see animals in the shapes of the rocks. As with some modern hunter-gatherers, perhaps shapes seen in this way were taken for real and the artists then drew animals exactly where they happened to see them, possibly bringing them to life or gaining their good will (Clottes 1995).

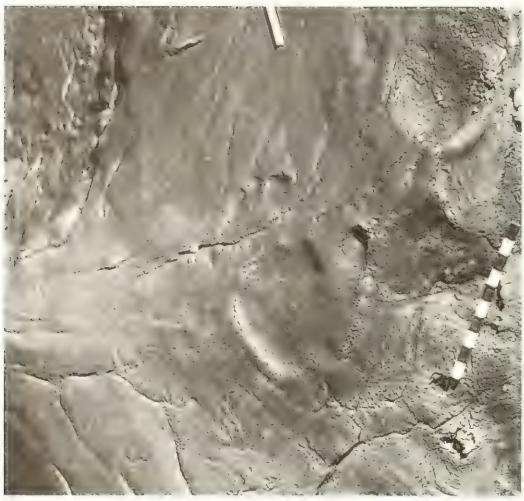

FIGURE 3. Hand print of a six-year old preserved in the cave of Fontanet (Ornolac-Ussat-les-Bains, Ariège). Photograph by R. Simonnet

This may in part explain the apparently random scattering of figures that can be seen in some of the largest caves. In extensive caves such as Niaux, Réseau Clastres, Rouffignac or Tuc d'Audoubert, the artists had a nearly unlimited set of options. However, their choices seem to follow two different trains of thought. Certain locations were selected as sanctuaries, such as the Salon Noir in Niaux, the Sanctuaire and the Chapelle de la Lionne in Trois-Frères, and the Grand Plafond in Rouffignac. In these locations numerous animals and signs were drawn, sometimes superimposed upon one another. The places chosen might be gallery endings (Niaux, Trois-Frères), large impressive chambers (Réseau Clastres, Lascaux) or small side chambers (Chapelle de la Lionne). Sometimes they were chosen because of their particular topography: In the Trois-Frères Sanctuaire, in addition to suitable wall surfaces, there existed the possibility of crawling behind the main wall and up a sloping shaft to reach a narrow ledge several meters above ground level in order to draw the impressive Sorcerer there. In Rouffignac, the Grand Plafond, which is both the main sanctuary and the center of the whole subterranean ensemble (Barrière 1982:194), was no doubt reached in such a way (Barrière 1982:187).

Scatterings of figures are no less enlightening about the artists' motives and actions. In the deeper galleries of Niaux, for example, the paintings are dispersed all along and were all drawn much more quickly and with far less detail than in the Salon Noir (Clottes 1988-89, 1995). From this it can be inferred that few people went to the ends of the cave and then did not stay long, unlike what happened in the main sanctuary where they seem to have gone again and again, taking their time, painting a collection of large detailed animals. In the faraway galleries they did not leave figures just

anywhere. Locations were chosen in relation to topographical peculiarities, such as jutting rocks, natural outlines, clefts in the walls, or else an unavoidable narrow crawling passage (Lac Terminal) around which they drew an accumulation of signs and an ibex, with a horse nearby.

It can be argued that these figures were not meant to be seen by many people, that what counted was the action of creating them, that their value lay in themselves and not in relation to a possible audience. This seems all the more likely when the locations chosen for paintings and engravings are out of the way, difficult of access, or when only one or two people can see them at a time because of the narrowness of the recess in which they happen to be, as in the Camarin of Le Portel or, in the same cave, in the Jeannel Gallery (Figure 4). In Niaux, a solitary mysterious figure, perhaps human but always ambiguous (Figure 5), the only one of its kind in the whole cave, was painted in the most remote part of the Salon Noir which can only be reached after first going on all fours into the Cul-de-Four and then crawling through a narrow passage. Whether or not this is a "holy of holies" can be debated (Clottes 1995). What is not debatable is that the thinking behind this figure is unlike that behind the spectacular, easy-access animals that crowd the walls of the Salon Noir. For the Trois-Frères Sorcerer the thinking is reversed: He was painted and engraved in the most conspicuous spot possible while the animals engraved below are often in places where only one person can squeeze in at a time.

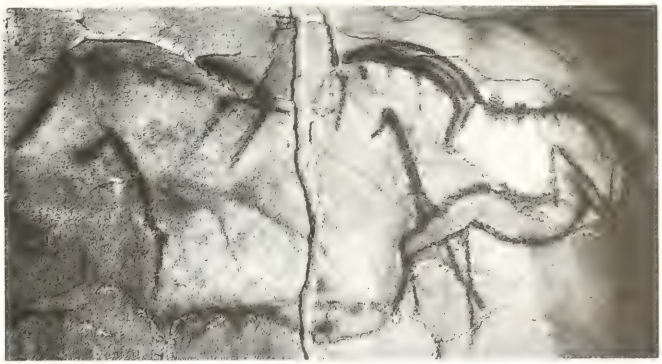

FIGURE 4. Several black horses were painted right at the end of a very narrow gallery in Le Portel (Loubens, Ariège). Photograph by J. Clottes

Conclusion

Laming-Emperaire and Leroi-Gourhan wrote their major books in the early sixties, when they dealt with the question of the various locations of the art and expressed their theories about it. Since 1960, 51 new caves or shelters containing rock art have been discovered, representing more than one third of the total now known (149). Sev-

eral more have been discovered since this article was written (1993), including the now famous Chauvet Cave; they are not included in the statistics. The area with the most discoveries is the Southeast (8/20, *i.e.* 40%) and the one with the fewest new caves is Quercy (7/26, *i.e.* 27%). The others are not far from the average: North, 4/14 or 28.5%; Périgord, 22/59 or 37%; Pyrenees, 10/30 or 33%. This great increase in the available evidence was bound to change at least some aspects of the overall picture that Laming-Emperaire and Leroi-Gourhan had drawn.

Contrary to what they thought, art in the light cannot be characterized either culturally, geographically or chronologically. It is to be found in all regional groups and at all periods, with greater frequency than was previously believed. The same is true for art in the dark, with one proviso: As Leroi-Gourhan had rightly stressed, with the Middle Magdalenian, deep and/or difficult caves were much more often frequented and decorated than ever before. However, the same can be said of the Final Magdalenian as well.

Art in the light and art in the dark do represent two divergent trains of thought, even if the themes used are not as unlike as Laming-Emperaire had assumed. One of the major differences is the regular occurrence of often important living sites next to the art in shelters or entrances and what can be inferred from that fact. Inside the deep caves, too, different ideas were at work in the choice of spectacular (Figure 6) or of secluded locations (Figure 5) and in the grouping or scattering of figures.

A better understanding of these questions in order to determine why, when and how the choices were made demands in-depth archaeological studies whenever possible, both in deep caves and in shelters. This has been accomplished with surprising results in the Réseau Clastres (Clottes & Simonnet 1990). In France, such studies are currently going on in the Volp Caves (Enlène, Trois-Frères, Tuc d'Audoubert), Bédeilhac, Le Portel and Montespan in the Pyrenees; in Les Deux-Ouvertures and Le Colombier II in the Rhône Valley (southeast area); in the Grande Grotte at Arcy-sur-Cure in the northeast; in Pergouset, Pech-Merle and Cougnac in Quercy and in Las-

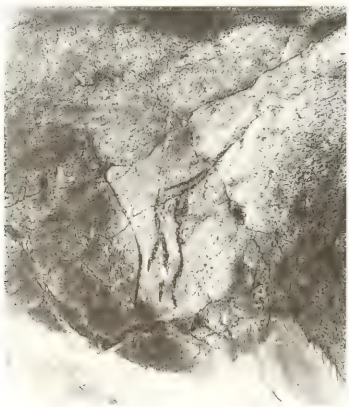

FIGURE 5. This mysterious black figure, painted in the innermost recess of the Salon Noir in Niaux (Ariège), might represent a human. Photograph by J. Clottes

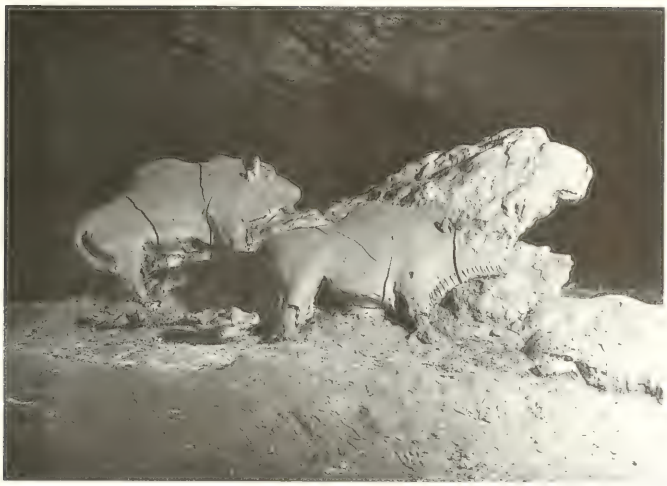

FIGURE 6. The famous clay bisons in Le Tuc d'Audoubert (Montesquieu-Avantès, Ariège) were placed in a conspicuous location at the end of the cave. Photograph by H. Béranger (collection Bégouën)

caux in Périgord. As a result, the next few years will probably bring as many changes to our outlook as have occurred since the sixties.

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Carving, Painting, Engraving: Problems with the Earliest Italian Design

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There is a long archaeological record in Italy, starting with the Lower and continuing through the Middle and Upper Paleolithic. Definite evidence for aesthetic sensibility and symbolic capacity, however, as in the rest of Europe, dates only from the early Upper Paleolithic onwards. Since this record is discontinuous, we briefly describe its characteristics during the different time periods, and relate them to the varying cultural and demographic contexts. In our conclusions, we discuss traditional interpretations and put forward alternative explanations.

The Artistic and Cultural Records

The Early Upper Paleolithic

The beginning of the Upper Paleolithic is characterized by archaeological assemblages dating between *ca.* 35,000 and 30,000 BP (uncalibrated years), which are classified as the Uluzzian and the Aurignacian. The Uluzzian, a local development often compared to the French Castelperronian, is limited to a few sites found in Southern and Central Italy (Gioia 1990). The Italian Aurignacian closely resembles the Aurignacian found in the rest of Europe, and is known from some 40 sites located over the entire peninsula as well as in Sicily (Gioia 1984-1987; Mussi 1992).

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Pigments have been recovered at the Uluzzian site of Gr. del Cavallo, but there is no evidence for how they were used (Palma di Cesnola 1965; Palma di Cesnola 1966). A few notched bones and stones were found at three Aurignacian sites: Riparo Bombrini, Riparo di Fumane, and Riparo di Fontana Nuova (Bartolomei *et al.* 1991-1993; Gioia 1984-1987; Vicino 1984). Perforated teeth and shells, as well as steatite pendants, are known from a few of Uluzzian and Aurignacian sites (Mussi 1991). Items which can be interpreted as figurative art are completely lacking from these sites.

The Gravettian

In the subsequent millennia, after 30,000 BP and before 26,000 to 25,000 BP, there was either no human settlement in Italy or a very limited one. Then, with the arrival of Gravettian groups, possibly coming from Western Europe, the peninsula and, later on, Sicily and other islands, were settled once again (Mussi 1990).

Fewer than thirty sites from the peninsula date to this period, *i.e.*, from *ca.* 25,000 to 18,000 BP. At these sites the lithic industries belong to both the Gravettian proper and to the subsequent Early Epigravettian, which is seen as a local development. Some of these sites are large and multilayered, while others contain only very limited archaeological remains. One out of four also contain works of art and other aesthetic remains (Figure 1). As shown by many burial inventories, ornaments found are quite elaborate (Mussi *et al.* 1989; Mussi 1990). Numerous pendants have also been recovered at residential sites, both in caves and in the open air. These were made of marine shells, canines of red deer, steatite and ivory.

As is usually the case in Italy, bone tools are rare, and ivory items nearly nonexistent. This is not surprising given that the fauna was generally temperate, with mammoths and reindeer very sparse in numbers, if extant at all, during the Late Pleistocene. The shaft straighteners or *bâtons à trous* found in the lower, or "Prince," burial at Grotta (Gr.) delle Arene Candide are truly unique. They were made of elk antler and three of the four similar implements deposited next to the shoulder and waist of the deceased adolescent male were decorated with radial and transverse incisions (Cardini 1942; Graziosi 1956). A radiocarbon date of 18,360 ± 210 BP (R-745), obtained for a level a couple of meters higher in the stratigraphic sequence, provides a minimum age for the burial and related items.

The chronology of the fifteen female figurines recovered so far is poorly defined, as none were recovered during regular excavations. They mostly come from the Grimaldi or Balzi Rossi sites, namely, from Barma Grande and, most probably, Gr. du Prince (Mussi 1991; Mussi 1995). Seven of them have long been known in the literature, while eight have recently been located in old collections stored in North America (Bisson & Bolduc 1994; Bolduc *et al.* 1996; Marshack 1986; Mussi, unpublished data). They include a few small carved heads, including the one nicknamed *Tête négroïde*, which have been traditionally interpreted as female, but which also could be depicting males. The raw materials used to fashion them were steatite and other soft stones, as well as antler and ivory.

Two more bone figurines were found in Southern Italy, at Gr. delle Veneri, by amateur archaeologists (Radmilli 1966), while two soft stone figurines were collected as surface finds at Savignano and near the Trasimeno Lake (Mussi 1995; Zampetti 1993, 1996).

Stylistically, the Italian figurines are very close to those found in the rest of Europe. When they depict the whole body, heads, hands and feet are poorly characterized, while the breasts, abdomen, and buttocks are accented. Some figurines are more

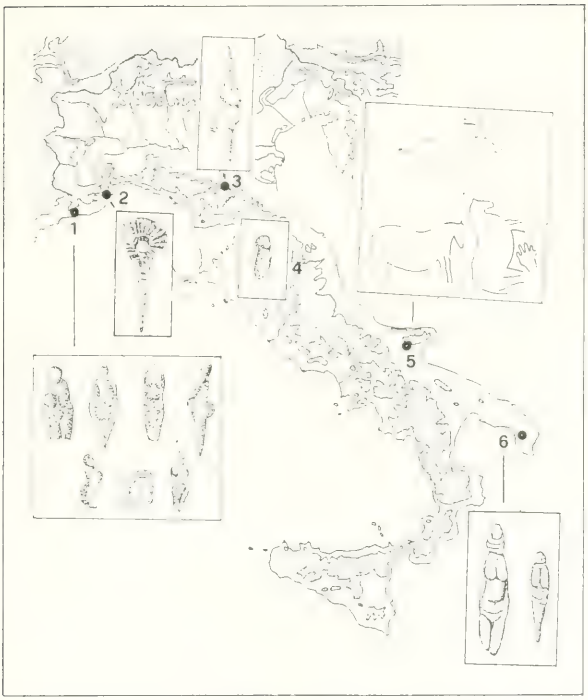

FIGURE 1. Sites with Gravettian and Early Epigravettian art, *ca.* 25,000-18,000 BP. Legend; gray areas are above 500 m asl. 1) Gr. di Grimaldi (Gr. dei Balzi Rossi); Gr. delle Arene Candide; 3) Savignano; 4) Trasimeno; 5) Gr. Paglicci; 6) Gr. delle Veneri.

realistic, while others more schematized. Both realistic and schematic traits are usually found on the same pieces.

Little other artistic material dates to this period. An ibex engraved on a bone was excavated from level 20c of Gr. Paglicci in Apulia, and radiocarbon-dated to 22,220 ± 360 (F-48) and 22,110± 330 BP (F-49). The associated lithic industry is an "evolved" Gravettian with truncated backed tools (Mezzena & Palma di Cesnola 1972). The ibex is quite rigid, with only a few details of the head and tail, and is covered by an incised chevron motif. Elsewhere we compared this piece to a similarly engraved ibex from the Gravettian assemblage of Gr. De Gargas, in Southern France (Zampetti 1987).

Grotta Paglicci has also yielded the only example of parietal art in Italy. The paintings were found in the rear of the cave, and include a minimum of five positive and negative hand prints, with the thumbs lacking in two or more cases (Zori 1962). A

minimum of 17 caves with painted hand prints are known from Western Europe, concentrated in the Franco-Cantabrian region (Verbrugge 1969). A few more are located in the Lower Rhône Valley (Figure 2). The recently discovered Grotte Cosquer, near Marseille, (Clottes *et al.* 1992a; Clottes *et al.* 1992b) and Grotte Chauvet, in the Ardèche, help associate the solitary Gr. Paglicci examples with a much larger group in the West. The associated industries recovered from these caves, and their chronology, range from the Gravettian to the middle Magdalenian, with most being in the earlier part of this sequence. A hand stencil at Gr. Cosquer has been directly dated to 27,110 ± 390 (Gif-A 92,409) and 27,110 ± 350 BP (Gif-A 92,491) (Clottes *et al.* 1992b). Dates in excess of 30,000 BP have been reported for the art at Gr. Chauvet (see Clottes, this volume).

Grotta Paglicci also contained three red horses, one in a vertical position, in close association with the hand prints. The animals are rigid, with a sinuous cervicodorsal line, bulging bellies, thin muzzles, and legs finishing without proper hoofs. Overall, they are similar to some French examples, such as the punctuated horses of Pech-Merle, currently attributed to early Style III, in Leroi-Gourhan's classification (Graziosi 1973). In France, Style III ranges in age from 17,000 to 13,000 BP (Leroi-Gourhan 1986). Interestingly, the horses at Pech-Merle are also associated with negative hand prints. The three horses from Gr. Paglicci also have traits in common with the painted horses at Cosquer, radiocarbon dated to 18,820 ± 310 BP (Gif-A 92,417) and 18,840 ± 240 BP (Gif-A 92,416). These include bulging bellies, left devoid of color in horse 3 at Cosquer just as at Gr. Paglicci, and the rigid legs which do not end in hooves.

The vertical position of one of the Gr. Paglicci horses is uncommon for Franco-Cantabrian art. A minimum of 11 vertical horses, however, are known from the region (Ricol 1973). These date no earlier than the final Solutrean.

A clue to the chronology of the Gr. Paglicci horses can be obtained from the exfoliated painted wall slab found at the entrance of the cave in level 14a, radiocarbon dated to 15,750 ± 160 BP (GrN-14323). This is clearly a minimum age for the paintings. The slab depicts only hindquarters painted in red. The depiction is dynamic, and the hoof is detailed. This figure is quite similar to the so-called "Chinese horses" of Lascaux. The radiocarbon dates from Lascaux, ranging from 17,000 to 15,000 BP (Leroi-Gourhan & Allain 1979), correspond well with the date for the painted slab. The slab, thus, possibly dates later than the horses of the rear of the cave. Since parietal art is so rare in Italy, however, we cannot be certain that animals depicted in the cave, even though stylistically different, necessarily date to different time periods.

Finally, G. Vicino first noticed an engraved little equid at Gr. del Caviglione, one of the Balzi Rossi or Grimaldi Caves, on the Italian side of the frontier with France, and assigned it to Style II, *i.e.*, to the Gravettian (Vicino and Simone 1976). Since, however, the engraving was found some 6 to 7 m above the Gravettian burial in this cave, we suggest that the engraving is associated with a higher level of the living floor, and accordingly with a later deposit (Zampetti 1987). Late Upper Paleolithic occupations are documented at several of the Balzi Rossi caves (Mussi 1992).

The Early Epigravettian and the Evolved Epigravettian

There is a marked increase in the number of known archaeological sites in Italy after the Last Glacial Maximum (Mussi 1992). These sites are associated with late Early Epigravettian and Evolved Epigravettian industries, dating from *ca.* 18,000 to 14,500 BP, which parallel the final Solutrean and the first phases of the Magdalenian else-

FIGURE 2. The distribution of sites with positive and/or negative hand prints. 1) Bernifal; 2) Font-de-Gaume; 3) Rocamadour; 4) Pech-Merle; 5) Gargas; 6) Tibiran; 7) Le Portel; 8) Tito Bustillo; 9) El Pindal; 10) Fuente del Salin; 11) Altamira; 12) El Castillo; 13) Fuente del Trucho; 14) La Baume-Latronne; 15) Bayol; 16) Cosquer; 17) Pa-glicci

where in Western Europe. These sites contain a dearth of aesthetic remains: Ornaments have rarely been found, and works of art are limited to a few engravings on bone and stone recovered from Gr. Paglicci. The later came from levels 9 and 8, which radiocarbon date to 15,270 ± 220 (F-67) and 15,460 ± 220 BP (F-66).

The engravings depict horses, aurochs, red deer and birds including a possible *Alca impennis*, the now extinct Great Auk (Mezzena & Palma di Cesnola 1972, 1992). This species, also depicted at Cosquer, survived to the very end of the Pleistocene in the Western Mediterranean (for a different identification of the specimen from Paglicci see D'Errico [1994]). Some of these engravings are quite complex. For example, there is a grouping of horses where several of the quadrupeds are hit by arrows or other projectiles. This scenic arrangement is also found in the French caves and dated to the Magdalenian (see the engraved pebble of Grotte de la Colombière or the stone slab of Abri de Montastruc [Movius & Judson 1956; Sieveking 1987]). In another instance, a bone shaft is decorated with a nesting bird, eggs, and a probable snake. This bird, as others at Gr. Paglicci, is quite similar to the one recovered from the Magdalenian VI level at Caune de Belvis in southern France (illustrated in Sacchi 1972-1973).

The Final Epigravettian

After 14,500 BP, during the so-called Final Epigravettian, which is contemporaneous with the later Magdalenian, the Azilian, and other Epipaleolithic industries, there is a sharp increase both in the number of archaeological sites, and in the aesthetic remains found in them. Over 70 different sized sites are documented in Italy, with art found at nearly 30 of these (Figure 3 and 8). We subdivide this inventory into naturalistic art, schematic art, and geometric art, and treat each category in sequence. We do acknowledge, however, that the first two categories do sometimes grade into each other.

Naturalistic art is found in 16 sites. It predominantly, but not exclusively, consists of portable art in peninsular Italy and rock art in Sicily. The art is represented primarily by engravings. Levanzo (Gr. dei Cervi), on the other hand, contains a human being painted in red. With the exception of Levanzo, this art, found at Gr. del Caviglione, Riparo (Rip.) Tagliente, Gr. Polesini, Gr. Giovanna, *etc.*, consists of zoomorphic depictions which are often stylistically similar to Magdalenian depictions. The figures are lively, the body proportions generally accurate, the hair is sometimes depicted, the head is detailed, with a conventional stylization of muzzles and horns similar to those found in Franco-Cantabria. Depictions of humans are less frequent, and there is often a contrast between their realistic postures and their masked or animal heads (Figure 4).

At Rip. Tagliente, in Venetia, a dozen of animals engraved in bone, on pebbles, and slabs or blocks have been recovered (Guerreschi & Leonardi 1984; Zampetti 1987). Several were found out of context, and are generically assigned to the Final Epigravettian. The animals depicted include bisons, lions, a single ibex, an aurochs, and several undetermined herbivores. Some are fragmentary or incomplete, while others are represented accurately. A beautiful lion or lioness, with detailing of the muzzle, mouth, eye, ear, and hair decorated one of the blocks found covering the male burial, radiocarbon dated to about 12,000 years ago (Bartolomei *et al.* 1974). We consider this depiction similar to that found at La Vache in France (Buisson and Delporte 1988: Figure 3). It should be noted that skeletal remains of lions are exceedingly rare at Italian archaeological sites dating to the end of the Pleistocene.

FIGURE 3. The location of sites with zoomorphic engravings. Legend: Circles: naturalistic art; squares: schematic art. Grey areas are above 500m asl. 1) Gr. di Grimaldi (Gr. dei Balzi Rossi); 2) Riparo Tagliente; 3) Lustignano; 4) Vado all'Arancio; 5) Gr. Polesini; 6) Riparo Salvini; 7) Gr. Paglicci; 8) Gr. delle Mura; 9) Gr. del Romito; 10) Gr. del Cavallo; 11) Gr. Romanelli; 12) Gr. dei Cervi (Levanzo); 13) Gr. Racchio; 14) Gr. dei Puntali; 15) Gr. della Za Minica; 16) Gr. dell'Addaura; 17) Gr. Niscemi; and 18) Gr. Giovanna

The very rich deposits at Grotta Polesini, near Rome, yielded half a million lithic implements, and 2 tons of faunal remains (Radmilli 1974). The site's stratigraphy, disturbed by the high water table of the nearby Aniene River, is poorly understood. There is a single C^{14} date for the site of 10,090 ± 80 BP (R-1265). Grotta Polesini has produced bones, stone slabs, and pebbles engraved with naturalistic and geometric patterns. The most frequent species depicted include horses and aurochs (Figure 5), as well as deer and leporids. The depictions are similar to those found elsewhere in association with Magdalenian industries (Mussi 1990-1991; Zampetti 1987; Zampetti 1990-1991).

An engraving of a wolf on a limestone pebble from this site was heretofore interpreted as an example of hunting magic: The little holes on the surface of the stone were said to be the result of projectile points thrown at the depiction to magically kill the animal. Such holes or pits are found on many other pebbles, both decorated and

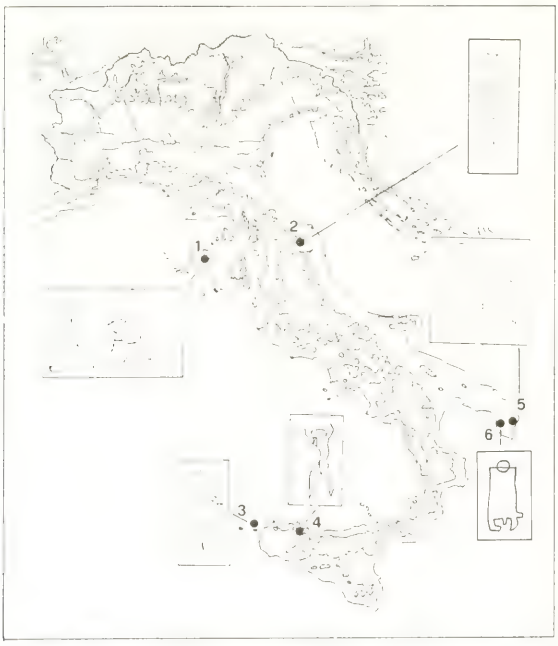

FIGURE 4. The location of sites with anthropomorphic engravings. Legend: Grey areas are above 500 m asl. 1) Vado all'Arancio, 2) Tolentino; 3) Gr. dei Cervi (Levanzo); 4) Gr. dell'Addaura; 5) Gr. Romanelli; and 6) Gr. del Cavallo

plain. We suggest that the holes, which are not artificial in origin, were, most likely, products of carbonate solution in water-logged sediments (Mussi & Zampetti 1993).

Grotta Giovanna, one of the earliest Sicilian sites, radiocarbon dating to 12,840 ± 100 BP (R-484), has yielded a stone slab engraved with a bovid, most probably an aurochs. The head of the animal is missing, the depiction is a dynamic one, with over-developed forequarters. The piece was found near the bottom of the archaeological deposit (Cardini 1971).

Grotta dei Cervi, containing 33 human and animal figures engraved on the rear walls of the cave, is located on the islet of Levanzo which, during low beach levels, was connected to nearby Sicily (Graziosi 1956; Tav. 286-294; Graziosi 1962). The engraved animals, consisting of aurochs, wild asses, and deer, are depicted in an elegant naturalistic style. Human representations have dynamic postures, but their heads have odd mushroom shapes or have beaks. A single human figure, also with a mushroom head, is painted in red. The topographic location of the human and animal figures here are in perfect accord with the spatial organization of a "sanctuary" proposed by Leroi-Gourhan (Leroi-Gourhan 1972; Zampetti 1987).

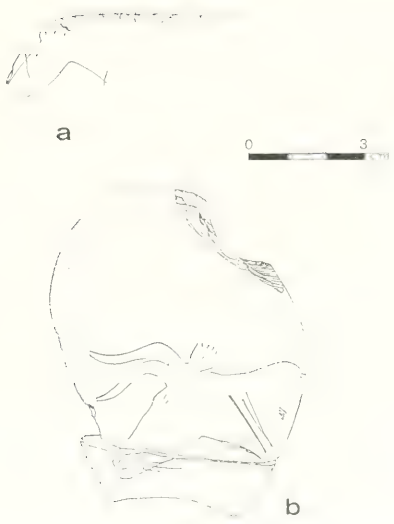

FIGURE 5. Examples of naturalistic art. Engraved pebbles from Gr. Polesini (a, after Zampetti 1990-1991; b, after Mussi 1990-1991)

At Gr. dell'Addaura, in Palermo, a unique scene is engraved on a rock wall. Several men and one or more women have pointed and almost beak-like heads, as does one individual at Gr. dei Cervi. The males also have voluminous hair or are wearing hoods. They are moving in different directions, and are involved in activities difficult to decipher: Some have raised arms; others carry poles or other objects. Two of the males are in odd horizontal positions (Graziosi 1956: Tav. 295-297; Graziosi 1973: Tav. 58-68). Two large horned deer, and several probable wild asses are depicted alongside the humans. In one instance, the human figure is superimposed on the deer.

Representations of humans are found outside Sicily as well (Figure 4). A notable example comes from Vado all'Arancio in Tuscany (Minellono 1985-1986). The single archaeological level here is radiocarbon dated to 11,330 ± 50 BP (R-1333). The bearded male engraved on a stone slab here has a realistic profile. We suggest that this depiction is quite similar to the human profiles engraved on the many plaquettes at the French Magdalenian sites of La Marche and Angles-sur-l'Anglin (Zampetti 1987). The cap or hairdo on the Vado all'Arancio male recalls those found at Gr. dell'Addaura. A female engraved on a bone recovered at Vado all'Arancio is much more stylized. Her unusual posture, with open arms and distinct legs, recalls depictions at both

Gr. dell'Addaura and Levanzo. Similar depictions are also found outside Italy, for example, at Mas d'Azil and at La Marche (Capitan *et al.* 1928: Figure 97; Pales 1976: Figure 60).

The engraved pebble recovered at Tolentino, which so far has been poorly described in the literature (Rellini 1912; Lollini and Silvestrini n.d.), depicts a female with an animal head. This piece is similar to specimens recovered from some French Magdalenian levels, such as the pebble from La Madeleine (Capitan and Peyrony 1928).

Schematic depictions of animals and of humans are found engraved at eight sites, most of which are located in Apulia and Sicily (Figures 3, 4 and 6). Their shapes are poorly detailed, their postures are rigid, and, as can be seen at Gr. Romanelli, several are characterized by a hatched filling (Figure 7a). At Gr. Romanelli, engraved rocks were found in level C while others were recovered out of context (Acanfora 1967). The radiocarbon dates for this site are somewhat contradictory (Taschini & Bietti 1972), and we assume that most of its Upper Paleolithic layers date to about 11,000-10,000 BP. Animals depicted here include a wild cat, two deer, a wild boar and several undetermined mammals. Similar hatched and schematic animals are known from other Late Pleistocene to early Holocene sites in Western Europe: For example, at Trou du Frontal in Belgium, Gouy in France,and at Sant Gregori in Spain (Aparicio Pérez 1990; Lejeune 1986; Martin 1989) (Figure 6).

Schematic and naturalistic depictions of animals are not allopatric. At Gr. Romanelli, for example, a block had a deer with a hatched filling on one side, and a bovid in much more naturalistic style on the other side (Acanfora 1967: Figure 2-4).

Other schematic engraved figures have even more rigid, and almost rectangular shapes. They are found at 7 sites in Apulia and in Sicily, executed both on cave walls and on small blocks. At Gr. dei Cervi in Levanzo, for example, a stone block with an engraved rectangular bovid was found at the entrance of the cave in level 3 (Figure 7b). Radiocarbon assays date it to 11,000 to 10,000 years ago (Graziosi 1962; Vigliardi 1982). It is assumed that the wall engravings found at the rear cave (see above) are significantly older.

Similarly, at Gr. dell'Addaura, two rectangular-shaped static bovids are superimposed on a very complex scene, described above, which depicts humans and naturalistic animals (Graziosi 1956: Tav. 298; Graziosi 1973: Figures 66-67). At Gr. del Cavallo in Apulia there is a "rectangular" male engraved on a block (Palma di Cesnola 1972; Vigliardi 1972) (Figure 4). While this object was not recovered *in situ*, it can, nonetheless, be associated with local Romanellian and Epiromanellian assemblages, which date slightly younger that the levels at Gr. Romanelli, and are, possibly, early Holocene in age.

Geometric engraved or painted decorations are found all over Italy (Figure 8). Some specific patterns are geographically limited: Ribbon-like ones done on little stone blocks are known from Southern Apulia, from Gr. Romanelli (Acanfora 1967: Figures 23-27), and from Gr. del Cavallo (Vigliardi 1972: Tav. II). The ones from Gr. Romanelli are somewhat younger, and possibly date to the early Holocene. Similar patterns have been found on stone slabs at Cueva del Parpallò in Eastern Spain, were they came from the Magdalenian III-IV levels (Fortea Perez 1978). The geographical and chronological gap between the two is of sufficient magnitude, however, to preclude direct filiation of the two (*contra* Graziosi 1956: see below).

Other patterns are more widely distributed both inside and outside the peninsula. Riparo Villabruna, in northeastern Italy, where there was rapid sedimentation around 12,000 BP, contains remnants of red painting on the wall (Broglio 1992). This site

FIGURE 6. The distribution of engraved animals with a hatched filling. 1) Trou d' Frontal; 2) Gouy; 3) Pont d'Ambon; 4) Morin; 5) Murat; 6) Borie del Rey; 7) Esplugues; 8) Sant Gregori; 9) Parpalló; 10) Polesini; 11) Cavallo; and 12) Romanelli

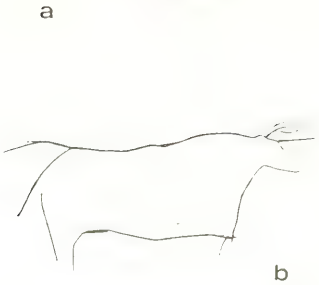

FIGURE 7. Examples of schematic art. a) from Gr. Romanelli (length = 7.5 cm) (after Acanfora 1967); b) from Gr. dei Cervi, level 3 (Levanzo) (length =17.5 cm) (after Graziosi 1973)

produced a burial in which the skeleton of a male was covered by large stones, one of which was painted with a red herringbone geometric pattern – possibly depicting some sort of a plant. A similarly painted block was found in the lower part of the archaeological deposit.

Another block with a geometric painting in red was discovered in level C-B at Gr. Romanelli, and is slightly younger in age. The design here consists of rows of little arched patterns placed next to each other (Cardini 1972).

Different styles of depiction are not spatially discrete. As we have discussed above, a male burial dated to about 12,000 BP, found at Riparo Tagliente in northeastern Italy, was also covered with stone blocks, one of which was decorated with a naturalistic engraving of a lion.

Other geometric designs are found on pebbles. Painted or engraved Azilian type pebbles have been found at several Late Pleistocene and early Holocene sites (Figure 9). A painted "M" motif is on a piece from Gr. delle Arene Candide, dating to *ca.* 11,000-10,000 BP, as well as on a piece from Gr. della Madonna, dating to the early Holocene (*ca.* 9,000 BP) (Cardini 1972) (Figure 10c). A similar motif is known from Mas d'Azil (Couraud 1985: Figure 29,14).

Other either painted or engraved pebbles are similar to Azilian pebbles found at French or Spanish sites. Azilian pebbles with red points, common at the type site, have also been found in Italy, out of context at Gr. delle Prazziche (Borzatti von Löwenstern 1965) and *in situ* at Gr. della Serratura. At the latter they are associated with Final Epigravettian industry, radiocarbon dated to 10,000 ± 130 (UtC-754), 10,270 ± 140 (UtC-755), and 10,220 ± 60 (Bln-3571) BP (Martini 1992).

A pebble from Riparo Tagliente and one from Terlago (Figure 10a), both found out of context, can be dated to the generic late Upper Paleolithic. Both are decorated

FIGURE 8. The location of sites with geometric engravings or paintings, including Azilian pebbles, *ca* 13,000 - 10,000 BP. Legend: gray areas are above 500 m. asl. 1) Gr. di Grimaldi (Gr. dei Balzi Rossi); 2) Gr. delle Arene Candide; 3) Terlago; 4) Riparo Tagliente; 5) Riparo di Villabruna; 6) Gr. della Ferrovia; 7) Gr. Polesini; 8-9) Gr. Maritza, Gr. di Ortucchio; 10) Gr. Paglicci; 11) Gr. della Serratura; 12) Gr. della Madonna; 13) Riparo del Romito; 14-16) Gr. dei Pipistrelli, Cozzica, S. Martino; 17) Gr. delle Mura; 18-19) Gr. del Cavallo, Gr. delle Veneri; 20) Gr.Romanelli; 21) Gr. delle Prazziche; 22) Gr. dei Cervi (Levanzo); and 23) Gr. Giovanna.

with groups of transversal incisions in a striped pattern (Bagolini & Dalmeri 1983: Leonardi 1972). They are quite similar to those recovered from Mas d'Azil in France illustrated in Couraud (1985).

The painted pebbles from Gr. dei Cervi on the islet of Levanzo closely match the incised ones from the Azilian site of Rochedane (France) (Graziosi 1973: Tav. IX; Thévenin 1989: Figure 7). In both inventories groups of transverse lines are parted in two and symmetrically arranged.

Fusiform engraved patterns, filled with transverse incisions which follow the maximum diameter of the pebble, are found on a specimen recovered from level 2 at Gr. Paglicci (Figure 10b). This level dates to the very Late Pleistocene (Mezzena & Palma di Cesnola 1992). The same pattern also occurs on a specimen from Gr. Poles-

FIGURE 9. The location of sites with Azilian pebbles (after Mussi & Zampetti 1988). 1) Gr. di Grimaldi (Gr dei Balzi Rossi); 2) Gr. della Arene Candide; 3) Gr. Polesini; 4) Gr. della Madonna; 5) Gr. dei Cervi (Levanzo); 6) Gr. delle Prazziche; 7) Gr. Romanelli; 8) Gr. Paglicci; 9) Gr. della Ferrovia; and 10) Terlago.

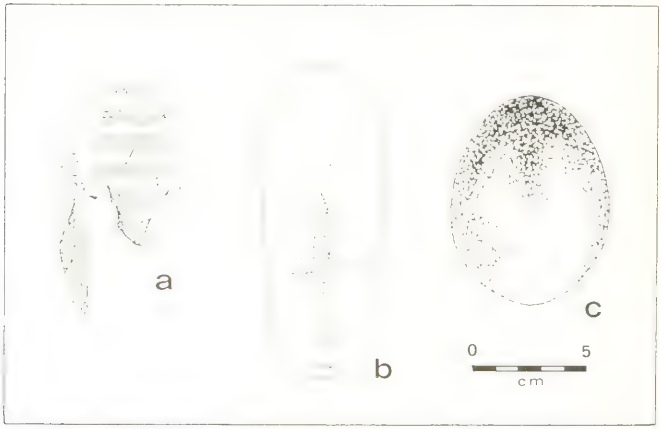

FIGURE 10. Examples of Azilian pebbles: a) fragment of an engraved pebble from Terlago (after Bagolini & Dalmeri 1983), b) engraved pebble from Gr. Paglicci, level 2 (redrawn after Palma di Cesnola 1988); and c) red-painted pebble from Gr. delle Arene Candide (redrawn after Graziosi 1974).

ini (see above for a discussion of the chronology of this site) (Radmilli 1974), on specimens from Abri Dufaure in France (D'Errico 1989: Figures 353 and 355), as well as on a piece from the Belgian site of Leduc (Lejeune 1986: Figure 18). The last two sites date to the late Upper Paleolithic.

The incised barbed wire pattern found on a pebble discovered out of context at the late Upper Paleolithic or Mesolithic site of Gr. della Ferrovia (Broglio & Lollini 1982) is also found on Azilian bone pendants from Rascaño and La Chora in Cantabrian Spain (Utrilla 1990: Figure 6).

Recognizable engraved bone tools are exceedingly rare in Italy. Discovered fragments of engraved bones may well represent remnants of bone tools. Quite similar ones have been found at sites distant from each other both inside and outside the peninsula. For example, the quadrangular pattern on the specimens from Gr. Polesini (Radmilli 1974: Figure 28), those from Riparo Tagliente (Guerreschi & Leonardi 1984:272), Gr. Maritza (Grifoni & Radmilli 1964: Figure 16.1), as well as Gr. du Taï in France (Marshack 1973).

Conclusions

The study of Paleolithic art in Italy has been strongly influenced by the approach advanced by Paolo Graziosi. He began his research on Paleolithic art in the thirties, when he compared the schematic and geometric engravings found at Gr. Romanelli to similar ones recovered at Gr. del Parpallò in Spain. This eventually led to his well-known hypothesis about the existence of a "Mediterranean Province" in art codified in his monograph, *L'arte dell'antica età della pietra*, published in 1956 and translated into several languages. By that time a few more sites were discovered in Italy, including Gr. Polesini and Gr. dei Cervi at Levanzo. The main features of Graziosi's "Mediterranean Province" included simplified animal representations, often quite rigid and schematic, and the prevalence of geometric and abstract patterns.

In another monograph, *L'arte preistorica in Italia*, published in 1973, Graziosi introduced some chronological refinements and restricted the "Mediterranean Province" to the artistic production of the final Upper Paleolithic. He accepted that the earlier art, that found in association with Gravettian industries, was a part of the broad Franco-Cantabrian sphere. By this time his "Mediterranean Province" was becoming increasingly restricted to Southern Italy.

The last 20 years have seen new discoveries and have resulted in a more articulate knowledge of Paleolithic art, as well as a better understanding of the Italian Paleolithic chronology. To date, we know the existence of engravings representing some 131 animals which have been found at 23 sites dating to the final Pleistocene through the early Holocene (Final Epigravettian). The vast majority of these images depict aurochs and equids (including the wild ass, *Equus asinus hydruntinus*, found at Sicilian sites), followed by deer (Figure 11). Wolves, felids, ibexes, bisons, wild boars, lagomorphs, and birds, taken together account for a dozen of specimens. Some 24 depictions of humans are also found at six of these sites. Geometric art is even more diffuse: In a preliminary inventory of decorated pebbles, for example, we counted more than 160 specimens from 35 sites – more than one hundred of which had engraved or painted geometric patterns (Mussi & Zampetti 1992).

In the last version of his hypothesis about the "Mediterranean Province," Graziosi merged the Gravettian art of Italy with that from the rest of Europe. We now argue that the same is true for later art as well, because Late Pleistocene art from Italy finds many

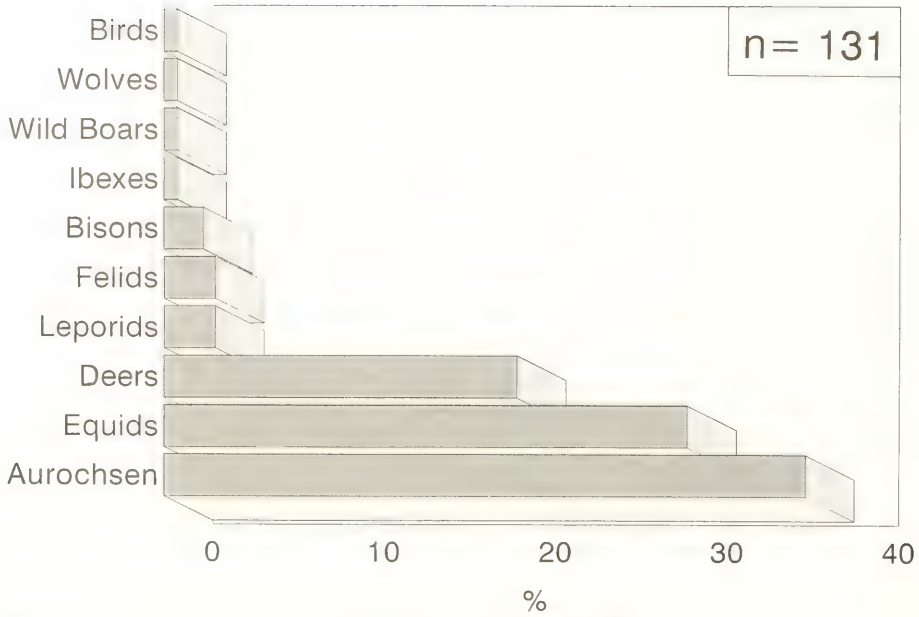

FIGURE 11. Engraved naturalistic and schematic animals from Final Epigravettian sites. Both portable and parietal art included.

parallels in the Franco-Cantabrian region. In the sphere of naturalistic art, both zoomorphic and anthropomorphic, we have noted several examples from Riparo Tagliente, Vado all'Arancio, Gr. Polesini, Gr. Paglicci, and Gr. dei Cervi at Levanzo, among others, which are similar to engravings discovered elsewhere in Western Europe.

The same holds true for the schematic art as well. Recent discoveries and new studies in Western Europe have yielded a better understanding of the Azilian and Epipaleolithic art. These works have added many animal engravings to the traditional geometric *repertoire* (Aparicio Pérez 1990; Guy 1993; Lejeune 1986; Lorblanchet 1989; Martin 1989). The shapes of these images are rigid and poorly detailed, and frequently filled, either with hatching or with dotting, as is the case with Italian schematic art. The chronology, unfortunately, is not always firmly established on both sides of the Alps. In both areas, however, the art is apparently more or less contemporary and dates to the last two millennia of the Pleistocene as well as to the early Holocene. The same is true for the classic Azilian pebbles discovered all over the peninsula as well as in Sicily.

We suggest, therefore, that it is no longer possible to oppose the "Mediterranean Province" to the Franco-Cantabrian one. In arguing this, we are not suggesting that artistic production had the same meaning all over Europe during some 25,000 years or more. There are clearly some major differences between the art found in Italy and in Franco-Cantabria. First, the quantities are different, with only a few engravings found at each Italian site. The animal depicted in Italy obviously do not include reindeer, mammoths, saïga antelopes and other taxa which did not live in this southern region. Furthermore, cave paintings are almost completely absent from Italy – a phenomenon which still awaits explanation. Next, figurines are not found at sites dating to the final Pleistocene. The lack of ivory and reindeer antler may partially explain their absence, but only partially so.

The very end of the Upper Paleolithic and the early Holocene saw a unique development in the art of southern Italy. The so-called "rectangular" animals are an example of this. Some early Holocene sites in Southern Apulia have other unusual items which we have not discussed, namely, a multitude of small irregularly shaped limestone blocks, covered by tightly engraved linear patterns, mostly geometric in nature. These have been found at Gr. delle Mura, Gr. delle Veneri, Gr. Marisa, Gr. di Porto Badisco, and Gr. del Cavallo (Calattini 1992; Cremonesi 1992; Guerri 1992; Vigliardi 1972).

We can understand the "art phenomenon" better if we link it to the local geography and demography. First, Italy is effectively separated from the rest of Europe by the Alps. It is further subdivided by high mountain ranges, such as the Apennines, as well as by water, which produced islands. These natural barriers created problems for the circulation of people, goods, and ideas. In spite of this, however, it is clear that exchanges over long distances did take place.

As we noted above, there is a marked increase in the number of sites in Italy through time. Less than 30 sites date to the Gravettian or initial Early Epigravettian, a period of 7,000 years. The 3,500 year time span following the glacial maximum, the late Early Epigravettian and the Evolved Epigravettian, is represented at *ca.* 40 sites. The subsequent Final Epigravettian, found over a timespan of some 4,500 years is known from *ca.* 80 sites. In addition to the increase in site numbers, we also see a progressive expansion of occupation through time. Thus, for example, the Apennines become occupied shortly after the glacial maximum while Sicily has sites dating after 14,500 BP. We assume that this increase in site density and areas occupied reflects not

only better preservation of younger deposits, but also mirrors a real increase in the number of groups inhabiting Italy.

During the Gravettian and the initial Early Epigravettian, data on the comparatively sparse population extant in Italy, on the comparatively high number of works of art, as well as on ceremonial burials, suggest that the very sparse population engaged in intense ritual activities. During this time it appears that symbolic activity, and the ensuing "artifact mode of communication," as defined by Wobst (1977), was used to counterbalance the dangers of dispersion over a large territory. These dangers included the threat of extinction of isolated populations – something which can occur from sheer stochastic imbalance between sex and age classes (Mussi 1990; Mussi & Zampetti 1988; Mussi *et al.* 1989).

The subsequent millennia saw a slow but steady rise in population density. This more benign demographic situation apparently led to a decrease in ritual activities – for this time period, works of art are rare and burials absent.

The very end of the Pleistocene saw a further demographic expansion. This expansion permitted, for the first time, the establishment of closed mating networks, *sensu* Wobst (1976; Mussi *et al.* 1989). At this time there was also a marked regional diversification in lithic industries and other technological and cultural activities. The increased relevance of rituals, as expressed by art, indicates long-distance relationships which were possibly geared towards counteracting exclusive access to restricted regions. As has been pointed out by Wiessner (1983) and others, social storage of obligation, done via exchange relationships and ensuing debts, assure access to distant territories. We suggest that the intense and diversified artistic activities at the end of the Pleistocene resulted from just such a pattern of exchange.

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The Mutability of Upper Paleolithic Art in Central and Eastern Europe: Patterning and Significance

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The study of Upper Paleolithic art, like the study of all Paleolithic things in general, had its origins in western Europe – more specifically, in France. Even though some 100 years have passed since the inception of this research, to this day most of the treatises written about Upper Paleolithic art, at least those widely read by Anglophone and west European scholars, emanate from western Europe or deal with materials from that part of Eurasia. This centering of research, in what I have argued was the periphery of the Late Pleistocene oekumene (Soffer 1985, 1995), has led to some serious distortions of the record and to some unwarranted conclusions about its evolutionary implications. In this chapter I redress these errors by taking a broad look at art in Upper Paleolithic Central and Eastern Europe, comprising roughly 50% of the European landmass.

Bypassing epistemological and scholastic arguments about "what is art," for the purposes of this survey I consider as "art" – any decorated items, be they utilitarian or nonutilitarian in function, as well as decorative items such as beads and pendants which may have been used as items of personal adornment. Furthermore, I structure the survey by region, time, and depositional context. Finally, because traditional parietal art is extremely sparse in Central and Eastern Europe, this chapter presents data on the distribution of portable art. I do argue, however, that in the case of painted mammoth bones found at some Upper Paleolithic sites on the Central European (or Central Russian) Plain, the weight of these pieces is such as to more properly place them in the "parietal" rather than the "portable" categories.

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The Early Upper Paleolithic

I begin by examining art from sites occupied before the Last Glacial Maximum (LGM), dating older than 20,000 BP.

As in western Europe, Central and Eastern data contain a small handful of objects claimed as Middle Paleolithic "art" or at least "symbolic objects" (*e.g.*, the famous Tata plaque or the problematic "engravings" from Molodova I and Ternopol') (Chernysh 1978; Sytnik 1983). These, as elsewhere, are few in number and their status as purposefully decorated objects most ambiguous.

Moravia

In this part of the world, the unambiguous appearance and proliferation of art is associated with the Gravettian technocomplex, appearing earliest in Moravia at sites assigned to the Pavlov Culture, dating some 28,000 to 23,000 BP (Figure 1). Sites assigned to this culture, like the vast majority of those dating to all periods of the Upper Paleolithic in Central and Eastern Europe, are open air sites and art objects found at them represent examples of portable art. Although caves exist in Moravia in close proximity to the sites with portable art, no examples of parietal art have been found here dating to this or any other Late Pleistocene period (Jelinek 1982; Svoboda 1986; Svoboda *et al.* 1994).

Moravian art comes from two contexts: a small percentage from burials and the vast majority from living sites.

Funerary Art. Burials at Moravian sites are very diverse, found in habitation sites, at their peripheries, as well as at some distances from them. They are quite impoverished in art or items of personal adornment, containing only a handful of perforated arctic fox teeth and pierced fossil shells (Absolon & Klima 1977; Klima 1953, 1958, 1959, 1963, 1964, 1987, 1990, 1991; Svoboda 1991; Svoboda *et al.* 1994,). Those from Dolni Vestonice, for example, both the one of the older woman at Dolni Vestonice I and the triple burial at Vestonice II just contain a handful of perforated teeth of arctic foxes (Klima 1987). The sole exception to this was the isolated Brno II burial, excavated at the end of last century, where an adult male was buried with over 600 dentalia beads, 14 perforated, often engraved, small disks made on a variety of media (stone, ivory, bone, and mammoth molars), and a male ivory puppet that measured 20 cm in height (Jelinek 1982; Svoboda *et al.* 1994).

Art of the Living. The art of the living in Moravia, on the other hand, is extraordinarily rich and diverse (Figure 2). Like most of the funerary art, it is concentrated at the large residential sites of Dolni Vestonice I, Pavlov I, and Predmosti. This inventory includes:

1) nonfigurative beads and pendants made of perforated carnivore (mostly arctic fox) canines, fossil shells, bone, ground stone and ivory, as well as ivory rings, and diadems (Figure 2.4).

2) figurative ivory pendants, including those which are most likely syneedoches for the female body (Figure 2.3) One scholar has recently argued that some of them may be depicting male genitalia (Kehoe 1991) but, a hypothesis which, given the proportions of the pieces (compared to those on the Brno puppet, for example), this appears very ambiguous.

Fig. 11.1 Location of the discussed Upper Paleolithic sites: 1–3) Dolní Věstonice-Pavlov-Milovice; 4) Předmostí; 5) Mezhirich; 6) Kievo-Kirillovskaia; 7) Trubchevsk; 8) Khotylevo II; 9) Mezin; 10) Timonovka, Yudinovo; 11) Avdeevo; 12) The Kostenki-Borshchevo sites; and 13) Sungir

3) engravings on bone and especially on ivory, on both utilitarian pieces and non-utilitarian ones, done in both geometric and curvilinear motifs. This inventory is also rich in figurative pieces consisting of anthropomorphic and animal figurines and figurine fragments. It includes sparse examples of engraving of a highly schematized female form, found at Predmosti, as well as a flat sculpture of a lion from Pavlov I (Jelinek 1982, 1990), and more numerous objects modeled in the round. Anthropomorphic forms are found sculpted out of mammoth metapodia, interpreted as seated, perhaps female, figurines, as well as ubiquitous depictions of naked depersonalized females wearing belts low on their hips, best exemplified by the clay figurine from Dolní Vestonice I (Figure 2.2).

Moravian depictions of the female are extremely diverse, ranging from highly variable realistic torsos, such as that from Petrkovice, to somewhat stylized depictions accenting breasts and belies with belly buttons such as on the figurine from Dolní Vestonice I (Figure 2.2), to extremely abstracted engraving such as on the engraved tusk from Predmosti (Figure 2.1). These faceless or headless figurines are complimented by portraiture, both realistic and schematized, as on the carved and engraved ivory pieces from Dolní Vestonice I (Jelínek 1982, 1990; Klima 1955, 1986).

The largest part of the Moravian art inventory consists of animal figurines and figurine fragments made in ivory, bone, and predominantly of fired clay. At Dolní Vestonice, for example, whose identifiable fired clay inventory numbers 721 pieces, 98% depicts animals (Figure 2.5) (Soffer *et al.* 1993).

While the rare depiction of human or female form accords well with the ratio of humans to animals reported by Leroi-Gourhan (1965) for west European Upper Paleolithic portable and parietal art, the species composition of Moravian animal figurines differs dramatically from those found in southwestern France and Spain. Moravian animal art is heavily dominated by depictions of carnivores, bears and lions in particular. At Dolní Vestonice I, for example, where 77 figurines have been recovered, Klima (1984) reports that 59% of those identifiable to a species, depict carnivores. This is in stark contrast to west European data where carnivores occur in well under 10% of the depictions (Leroi-Gourhan 1965).

A comparison of proportions of herbivores to carnivores in the faunal inventories to those found in art in southwestern France does mirror the infrequency of carnivores among the skeletal remains recovered (Delporte 1990). While most of the organic remains recovered at the Moravian sites await final quantification, those published for Pavlov I (Musil 1955, 1958), where carnivores represent 50% of the individuals, come close to the 45% of them depicted in the Pavlov I figurines. At present we are in a midst of a study of these animal figurines; our preliminary observations suggest that many depict young or immature carnivores (Seilt, personal communication, 1991).

The ivory, bone, and stone Moravian art objects were manufactured by a subtractive technique where their makers brought out the forms by carving, pressing, grinding, whittling, and polishing. The ceramic figurines, on the other hand were made by an additive process where small bits and pieces of clay were stuck or pushed together with heads, ears, feet, and tails fashioned separately and added to the bodies (Soffer *et al.* 1993). This represents a second example of the additive process in the production of Upper Paleolithic art. The first – painting – is poorly represented in Moravia, and reported only at Predmosti where Breuil (1924) noted a fragment of mammoth flat bone decorated with ocher in a geometric and curvilinear design.

Our recent study of the technology used in making these ceramic objects led us to conclude that the fired figurine fragments recovered from Moravia, where only one complete piece is present in an inventory of ~10,000 pieces, were not fashioned as

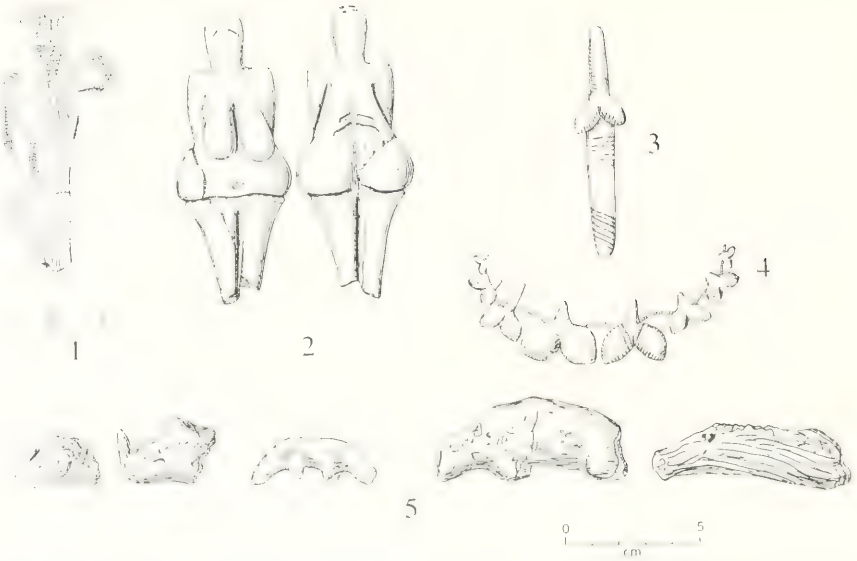

FIGURE 2. Art and jewelry from Moravian Upper Paleolithic sites; 1) Engraving on ivory tusk from Predmosti (after Absolon and Klima 1977, figure 16); 2) Female figurine from Dolni Vestonice I, fired clay (after Klima 1986, p. 13 Figure 1); 3) Carved ivory rod from Dolni Vestonice I (after Klima 1986, p.12, Figure 1); 4) Figurative ivory beads or pendants from Dolni Vestonice I (after Klima 1986, p. 12, Figure 4), and 5) Animal figurine and figurine fragments from Dolni Vestonice I and Predmosti, fired clay (After Soffer *et al.* 1993, Figure 3)

permanent objects with long use value (Vandiver *et al.* 1990; Soffer *et al.* 1993). Rather, what was important was the performance associated with their making and firing. This performance often involved purposeful deformation of the animals as well as piercing them with sharp objects. This puts the ceramic figurative inventory in stark contrast to animal and human depictions in bone, ivory, and stone whose use-life was infinitely greater, and suggests even greater complexity in the meaning that Upper Paleolithic art had for its makers and users.

Aside from being found in greater numbers at the larger residential sites, the distribution of the Moravian art, with the possible exception of the fired ceramics at Dolní Vestonice I, is not patterned. The pieces came from the cultural layers both inside and outside features such as dwellings. Data on the ceramics from Dolní Vestonice I indicate that here these objects were found in greatest numbers near hearths and kilns used to make them. The kilns were located near to, yet clearly sequestered from, the residential areas of the sites, suggesting that the performance associated with their production was a special component of life at this sites. The fact that a small number of figurative ceramic fragments has been recovered from Dolní Vestonice II and Pavlov II, sites with no other art objects, suggests that the production and use of ceramic figurines were far more ubiquitous than was the making or use of art made of ivory, stone, and bone.

European Russia

The Russian Plain, some 2,000 km east of Moravia, is the second region with abundant art predating the LGM. Archaeological inventories here, constituting a part of the Gravettian technocomplex (Kozlowski 1986; Otte 1982), are assigned to a myriad of archaeological cultures, with the Kostenki-Avdeevo cultural entity the most widely represented and best known (Grigor'ev 1993; Soffer 1993). As in Moravia, art is found at just some of these sites, which cluster in the southeastern half of the Plain with a few northern outliers.

Sungir'. Sungir', one of the earliest of these outliers, dates to about 25,000 BP (Figure 1) (Bader 1965). It has been identified as a residential site, occupied during warm weather months. The site contained at least 6 burials, only three of which were undisturbed by periglacial deformation that dislocated the cultural layer. These three, one of a 60 year old male and a double one of a boy and a girl interred head to head in a single grave, were found inside one of the dwellings, and contained the vast majority of art objects. The grave goods consisted of 10,000 ivory beads sewn onto the deceased's clothing, hundreds of perforated arctic fox teeth, stone pendants, ivory bracelets, ivory animal figurines, and enigmatic latticed ivory disks.

The art of the living at Sungir' is more problematic. Objects found outside of the burials were few and far between – a handful of ivory beads, belemnite pendants, a latticed ivory disk and two animal figurine amulets in ivory, one complete and another broken. The figurines, like those from the burials, show traces of having been painted in red and black (White 1993). Since they came from a heavily disturbed cultural layer, it remains unclear if their original use was associated with the living or whether they were parts of other disturbed burials.

The Kostenki - Avdeevo Sites. The predominantly funereal context of Sungir' art is counterbalanced by the abundance of art in the living areas recovered from sites assigned to the Kostenki-Avdeevo archaeological entity and affiliated sites, such as

Khotylevo II and Gagarino (Figure 1) (Boriskovskij 1984; Grigor'ev 1993; Gvozdover 1989a, b; Praslov & Rogachev 1982). Although problems remain with the dating of these residential sites, they span a time period between some 24,000 and 20,000 BP, with most intensive occupation around 22,000 years ago (Svezhentsev 1993). The typological similarity of the lithic inventories from these sites to those in Moravia, as well as similarities in the worked organic inventories, in art, and in site structure, has led numerous scholars to unite the two into the Willendorf-Pavlov-Kostenki-Avdeevo cultural unity, the genesis of which is hotly debated. Some see this similarity reflecting wide-spanning interaction networks (e.g., Gamble 1991), while others have argued that given the chronological disparity between the two, with Moravian sites dating between 2,000 and 6,000 years earlier, demographic shifts offer a more parsimonious explanation for the likenesses observed (Grigor'ev 1993; Soffer 1987, 1993).

Burials are infrequent here and their inventories disparate. The adult male buried at Kostenki 18 (Khvoikovskaia) had no grave goods while the young boy at Kostenki 15 was interred with ~150 beads and perforated arctic fox teeth (Praslov & Rogachev 1982).

The art of the living at these sites, as in Moravia, is extremely rich and diverse, executed in bone, ivory, and stone, produced by the reductive techniques of working down these media into desired shapes, as well as by additive painting of many objects. As at Moravia, this art is found in abundance at large residential sites where its distribution is not associated with specific features or parts of the sites. The Avdeevo and Kostenki inventories include (Abramova 1966; Grigor'ev 1993; Gvozdover 1989a, b; Praslov & Rogachev 1982):

1) beads and pendants made of ivory, perforated carnivore canines, stone, fossil shell, and belemnites,

2) ivory pectorals and diadems incised in geometric, rarely curvilinear, designs,

3) a plethora of engraved utilitarian and nonutilitarian objects incised in flat, shallow geometric designs including short lines, crosses, checkworks, chevrons, zigzags, and wedge-shaped notches. A few figurative engravings of schematized animals have been found here as well.

The sites also contain anthropomorphic figurines, including a sitting figure made of mammoth metapodia akin to the one recovered at Predmosti, and a few possibly male ivory figurines.

Most of the human depictions from these sites, however, are of women – represented by 130 pieces in various stages of completeness. These are made of ivory as well as of marl and, like their Moravian equivalents, are quite heterogeneous. All are naked, some have elaborate hairdos but no faces, others both. Gvozdover (1989b) has done an extensive study of them, identified the artistic cannon used to make them, as well as delimited four different morphological types depicting different types of adult women in the different stages of the reproductive cycle. These types are not specific to particular sites, with more than one found at most of the sites. While Gvozdover has suggested that the four types had different semantic meanings, Delporte (1993) has argued that they may also reflect different masters or different artistic schools, an interpretation in need of firsthand future research.

Gvozdover (1989a,b), as well as Marshack (1991), have noted the presence of belts on the chest or waists of many of the figurines as well as of bracelets engraved with wedge-shaped notches or zigzags and slanted lines (Figure 3). The identification of the same – in location and design employed – on shovel handles, awls with heads, and decorated animal phalanges, permitted Gvozdover to identify these objects as

analogues of the figurines – namely, as highly stylized depictions of females on objects, many of which were, at the same time, both utilitarian tools and figurines.

Finally, perforated round marl and ivory disks or medallions recovered at the Kostenki-Avdeevo sites have been classified as "vulvas" which, if such, represent even more schematic female imagery (Marshack 1991 with references).

The Kostenki-Avdeevo art inventory also includes a great number of animal figurines executed in bone, ivory, and marl. The larger, more complete, but less numerous, ivory and bone pieces contrast sharply with the more numerous but much smaller-sized and more fragmented marl inventory (Fradkin 1975). Although marl is a more fragile material, a quality which may account for the more fragmented state of these objects, given the Moravian data on intentional fracturing of ceramic figurines, it is also possible that we are dealing with intentional fragmentation of images at the Kostenki-Avdeevo sites as well.

The ratio of female to animal figurines at these sites, calculated from data in Abramova (1966), differs dramatically from that observed not only in western but in central Europe as well. The inventory at Kostenki I – layer 1, for example, has 57.6%

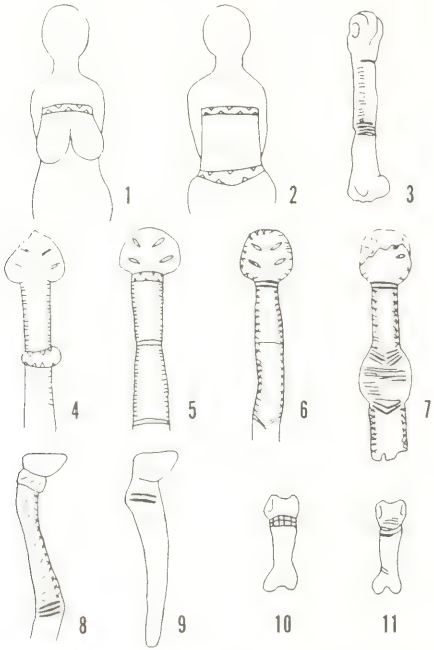

FIGURE 3 The location of decoration on the ivory figurines and other objects from the Kostenki and Avdeevo sites (after Grozdover 1989b, Figure 8)

depicting females – indicates that female figurines are more than 13 times as numerous as in western Europe and some 28 times as frequent as at Dolni Vestonice I. The species composition of the animal figurines also differs greatly from that encountered at the Moravian sites. At Kostenki I-1, for example, herbivores account for 71.8% of the depictions compared to the 40% at the Moravian sites. This proportion brings the Russian sites closer to those observed in western Europe, and is in accord with the herbivore to carnivore ratios observed among the number of identifiable specimens noted among the osteological remains recovered at Kostenki I-1 (Vereshchagin & Kuz'mina 1977).

As in Moravia, the depositional context of the Kostenki-Avdeevo art inventory is indistinct. While Gvozdover (1989a, b; personal communication 1993) notes that all the decorated implements with schematized female design (*i.e.*, spatulas and awls) at Avdeevo came from pits, female figurines were found both in the pits as well as in the cultural layer. The estimation of how many of these are found inside or outside the dwellings must await unambiguous reconstruction of the dwellings themselves, something which is exceedingly hard to do at these extraordinarily complex sites.

The Late Upper Paleolithic

I next turn to the record dating at and after the LGM, between 20,000 and 10,000 BP.

Moravia

The Moravian record indicates depopulation of the area between some 21,000 and 15,000 BP, when the area was sporadically used for occasional hunting forays during warm weather months by groups positioned elsewhere (Svoboda 1991; Svoboda *et al.* 1994). The area became more permanently occupied after some 14,000 BP by mobile Magdalenian groups who left behind a record of cave occupations. The more intensely occupied caves, such as Pekarna, do contain some pieces of portable art (Jelinek 1982; Klima 1974; Svoboda 1986; Svoboda *et al.* 1994). This art is akin to that known from Magdalenian groups elsewhere, consisting of engravings of herbivores on utilitarian and nonutilitarian objects made of antler and bone. The sparseness of these inventories, as well as the narrowing of the artistic context, when compared to that preceding the LGM, may indicate a significant decline in artistic production and a reorientation of the subjects represented from females and carnivores to herbivorous prey species. Finally, human interments are not known from this time period (Svoboda *et al.* 1994).

European Russia

The Russian Plain. A similar situation prevails in the eastern, Kostenki-Avdeevo, part of the Russian Plain where there is also a decline in the intensity of occupation and a significant decline in artistic production and use (Rogachev & Praslov 1982; Soffer 1993). The artistic context is sparse, consisting of some beads and pendants, but no female or animal figurines. These few remains are found in cultural layers of habitation sites. The two burials dating from to this time period (Kostenki 2 and in layer 3 of Kostenki 14 (Markina Gora) are devoid of grave goods (Praslov & Rogachev 1982).

A dramatically different artistic record is in evidence, however, on the central part of the Plain, where rich and diverse art inventories have been recovered from such sites as Gontsy, Eliseevichi, Kievo-Kirillovskaia, Mezhirich, Mezin, Timonovka, and Yudinovo (Figure 1) (Soffer 1985).

No human burials have been found here, with the art of the living found at just some open air residential sites, those probably occupied during cold weather months (Soffer 1985). Art and jewelry have been recovered from the cultural layers both inside and outside of the dwellings at the sites, and thus, as elsewhere, they are not exclusively associated with specific features such as hearths, dwellings, or pits.

Although this inventory is smaller in size than found on the Plain before the LGM, it is as diverse, and includes not only portable objects but parietal art as well.

Jewelry is represented by beads and pendants made of ivory, bone, fossil shell, and amber as well as by engraved ivory bracelets (Figure 4).

Engraving is schematic, nonrepresentational, dominated by geometric "fish-scales," zigzags, chevrons, lines, ladders, rhomboids, and geometric meander or spiral, motifs (Marshack 1979). Particular designs are not site-specific, and found on pieces, most of which are nonutilitarian in nature. Curvilinear motifs are less frequent and also not site specific. They are found on a few ivory plaques interpreted by some scholars as schematic maps, as well as on an ivory tusk from Kievo-Kirillovskaia (Soffer 1985).

Anthropomorphic figurines, on the other hand, are quite site-specific (Figure 5). Ivory female figurines are far less frequent in number than at the Kostenki-Avdeevo sites – with only 20 recovered altogether – and show increasing abstraction and schematization through time (Soffer 1985). The oldest, from Eliseevichi (Figure 5.1), is the most realistic and reminiscent of the classical "Venuses" that predate the LGM. The semantic focus here, however, has already shifted from emphasizing breasts and bellies to emphasizing thighs and buttocks. The profile shows the triangular exaggeration which, in time, comes to increasingly represent the female image across Upper Paleolithic Europe (Marshack 1991; Soffer 1985). This schematization and triangulation is accompanied by the appearance of engraved pubic triangles or Vs on the figurines. In time, this progressive schematization results in very abstracted females from Mezhirich (Figure 5.2), dating to about 15,000 BP – identifiable as such because of the engraved pubic triangles (Soffer 1985; Marshack 1991) .

Equally abstracted, but far more redundant and three-dimensional female forms came from the coeval site of Mezin, dating also to ~15,000 BP, where 17 of these ivory objects have been recovered (Figure 6) (Shovkoplyas 1965). They range in length from 2.4 cm to 14.5 cm, in contour from tall and slender to short and squat, have clearly delimited midsections or waists accented by horizontal lines, and feature geometric engraving sometimes on their upper parts, sometimes on the lower parts, but most often over both upper and lower and front and back surfaces. All are highly polished from repeated use and have their bases broken. When found at the beginning of this century, they were divided into two types, and on the basis of their general contours identified as "phalluses" and "birds" (Abramova 1966; Volkov 1913). The presence of pubic triangles on the majority of these pieces led other scholars to consider them as female figurines (Bibikov 1981; Shovkoplyas 1965; Marshack 1991). The identification of these pieces as highly abstracted female figurines is strengthened both by their shape, which accentuates the triangular buttocks region, as well as by the nature of the engraved motifs decorating their surfaces. A number of scholars have noted the presence of chevrons, rhomboids, and geometric meanders on both the figurines and on the two bracelets found at Mezin (Marshack 1991; Stolyar 1985).

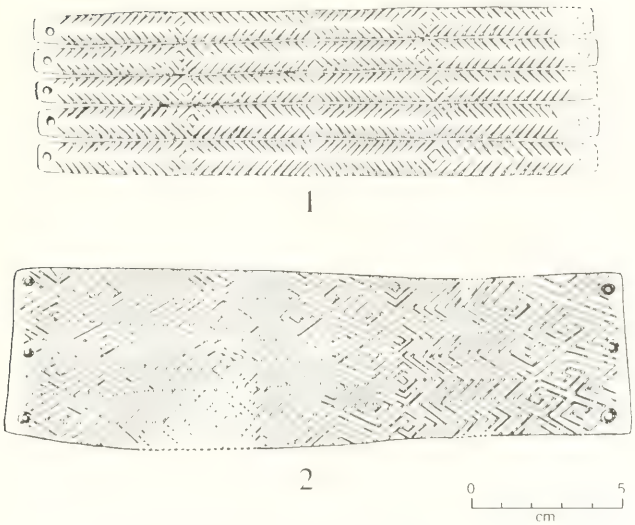

FIGURE 4. Ivory bracelets from Mezin (after Shovkoplyas 1965, Figure LI, LII).

Using a semiological approach borrowed from Gvozdover (1989a) which traces the duplication of the decorative motifs from the belts and bracelets found on the classical "Venus" figurines to highly schematized rendering of females on engraved objects, and recalling the presence of linearly engraved bracelets on the female figurines from Willendorf to Kostenki, permits us to associate the wearing of engraved bracelets with females. The two complete bracelets recovered from Mezin (Figures 4.1, 4.2), feature slanted-line disjointed chevron design which is anchored by rhomboids on each bangle, as well as a more complex version of the same motif, with some rhomboids elaborated into geometric meanders found on the cuff bracelet (Figure 4.2). The same chevrons, rhomboids, and geometric meanders are found profusely decorating the Mezin figurines, both those classified as "birds," as well as the so-called "phalluses" (Figure 7). This redundancy, together with the demarcation of the belts on the waist as on all Eastern European classical "Venuses," permits us to securely identify the Mezin pieces as highly abstracted depictions of females.

Extending this decoding even further, into a more tenuous realm, I also suggest that the slanted rectangles coming out of centered vertical lines found on the fronts of some of them are highly schematic faces (Figure 8). The rationale for this is again found in the classic Venuses predating the LGM. With the exception of the portrait head from Dolní Vestonice I (which has detailing of forehead, brows, nose, and mouth), females with faces (such as the head from Brassempoy), as well as the other figurines from Dolní Vestonice, Kostenki, and Avdeevo, along with the head of the male puppet from Brno II, all have detailed accentuation of the upper halves of the face: forehead, brows, and noses, but no mouths. While the more realistic of these

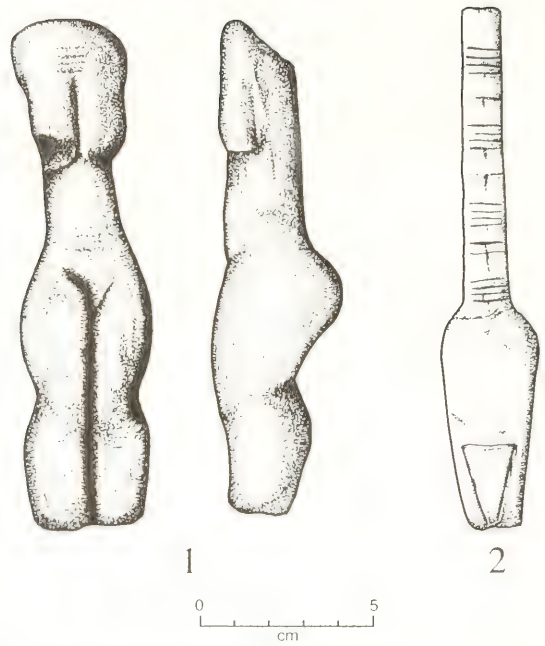

FIGURE 5. Ivory female figurines from the Central Russian Plain: 1) Eliseevichi (after Soffer 1985, Figure 2.39) 2) Mezhirich (after Soffer 1985, Figure 2.72)

maintain the natural vertical and horizontal positions of the depicted facial features, the most schematic of these faces, such as on the Dolni Vestonice "Venus," slants the merged brows and eyes and omits any features below them. This "face" does accent the vertical planes of the face – by four very finely engraved straight lines which run from the brow and eyes down the center of the face and terminate near the clavicles (Figure 8.2). An analogous representation, as Marshack (1991) has pointed out, is also found on the engraving from Predmosti (Figure 8.1). This combination of medial vertical demarcation, originating at the top and branching into two laterally slanting lines, leads me to suggest that at least parts of the slanting rectangles on the Mezin figurines may depict faces (Figure 8.3).

Finally, going a step further into this realm, and generating rather than supporting a hypothesis, I suggest that the number four itself may be associated with some category of femaleness. Specifically, I note that figurines and figurine fragments from Dolni Vestonice I have four holes punched on top of their heads, four "fat folds," two on each side of the back, and that the most complete one has four fine lines engraved down the center of its face (Figures 2.1, 8.2). The figurine from Eliseevichi

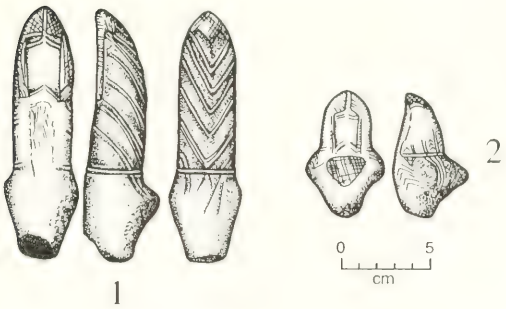

FIGURE 6. Ivory figurines from Mezin (after Soffer 1985, Figure 2.81)

(Figure 5.1) has the same four lines engraved on its chest and belly, with analogous series of four engraved lines present on the Mezhirich piece as well (Figure 5.2).

While the female figurines from Mezhirich bear no traces of paint, the heavy shellac coating on the Mezin pieces does not permit us to know if they were painted or not. Painting, however, is well represented on decorated mammoth bones recovered from Mezhirich, as well as from Mezin (Soffer 1985). Both inventories feature geometric designs done in red ocher, and in both cases, because of the weights of the objects involved, we are dealing with nonportable or parietal art.

Finally, sites on the Central Russian Plain dating after the LGM contain a further example of the parietal art form, which, for a lack of a better word, I call architectural art. Mammoth bone dwellings found here feature outside facades constructed of carefully selected skeletal elements. The most dramatic example comes from Mezhirich, where the outside retaining wall of dwelling #1 was made of mammoth mandibles stacked into a herringbone design. While, given the female-specific association of this pattern at Mezin, it is tempting to interpret the semantic meaning of this dwelling as signaling female also, the ubiquity of this geometric pattern makes me hesitant to do so.

The placement of bones in other dwellings at Mezhirich and elsewhere indicates also the use of the principles of symmetry and of mirror imagery not only in the construction of individual dwellings but in their relationships to each other as well (Soffer 1985). These observations have led me to argue that what we have here are cases of architectural art – another example of Upper Paleolithic art which is nonportable but parietal in nature.

The Urals. Finally, although traditionally defined parietal art such as cave paintings and engravings is extraordinarily scarce outside of the Franco-Cantabrian region, even from areas with a record of cave occupations, it is not totally absent. The engraving at Badanj in the former Yugoslavia, and paintings at Cuciulat in Rumania are two examples (Bahn & Vertut 1988; Carciumaru 1987). The extreme eastern fringe of Europe, the Urals, have two caves, Ignat'evskaia and Kapovaia, the later dating between 13,000 and 15,000 BP, which contain monochromatic paintings of mammoths and horses executed in red or black (Bader 1965; Petrin 1992). The study of this art is still in progress, but the published preliminary reports indicate that the subject

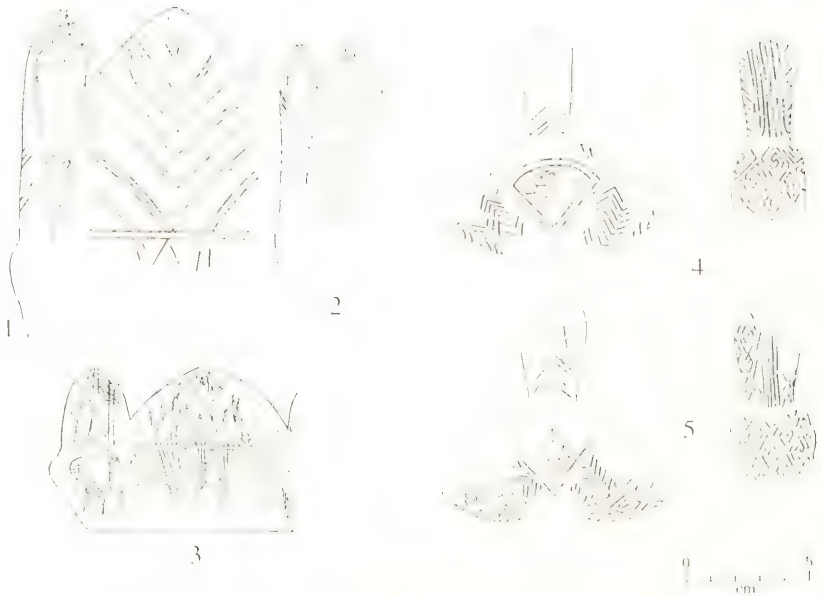

FIGURE 7. The design motif on the Mezin figurines: 1) (after Shovkopylas 1965, Figure 60.1); 2) (after Shovkoplyas 1965, Figure 60.2); 3) (after Shovkoplyas 1965, Figure 60.3); 4) (after Shovkoplyas 1965, Figure 48a.1); and 5) (after Shovkoplyas 1965, Figure 48a.2)

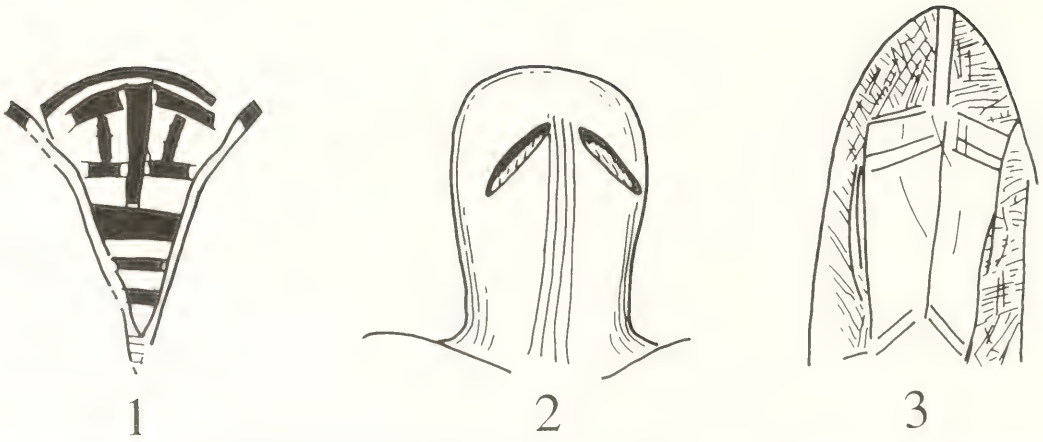

Figure 8. Schematic representation of "faces" on Upper Paleolithic engravings and figurines depicting females: 1) on the engraved Predmosti tusk (after Marshack 1992, Figure 9A); 2) on the figurine from Dolni Vestonice I; and 3) on the Mezin figurine

matter is similar to that found in the Franco-Cantabrian region, with herbivorous prey species being the dominant subject matter.

Implications and Conclusions

These data from Central and Eastern Europe carry the following implications:

1) First, the presence of both abstracted and realistic depictions of human forms here, as well as the presence of three-dimensional "in the round" and flat sculptures, of geometric and curvilinear design, of engravings, and of permanent and performance art, underscores that Gravettian art east of the Carpathians cannot, as some have claimed, be equated with sculpture in the round depicting female forms (*e.g.,* Delporte 1993).

2) Second, a comparison of the provenience of the Central to the East European art show that Upper Paleolithic art here was clearly a matter of the living. Art of the dead – objects found in burials – is dominated by items of personal adornment, beads, pendants, perforated carnivore teeth and such. Sparse as funerary data are, they also indicate a decline over time in the wealth of the burial inventories – a phenomenon which, I have argued elsewhere, reflects the entrenchment of hierarchical social relationships here whose demarcation needed no longer to be hidden from daily view (for a discussion see Soffer 1985).

3) The inventories of both regions also show the production of stylistically and semantically diverse female figurines which, before the LGM, emphasized breasts and bellies (Gvozdover 1989b). Although in Moravia recognizable depictions of women are less numerous than those of animals, female figurines dominate the Russian portable art. They, like their Moravian counterparts, are very diverse. We can observe the existence of both the geometric and the figurative systems of female representation. While today we do not know if the two were used separately in Moravia, their use in conjunction with each other has been clearly documented at the Kostenki-Avdeevo sites. The heterogeneity in female depictions in form, medium, as well as in detailing or abstraction, strongly argues against the validity of any single explanation – be it "mother goddess," "sex symbol," or "interaction network" emblem for these objects. Rather, as Munn (1973) has shown for the ethnographic present and Lewis-Williams (1991) pointed out about Upper Paleolithic art in general, it speaks of semantic polysemy.

It is also likely, as Conroy (1993) has recently noted, that the proliferation of standardized female depiction at this point of prehistoric time signals the gendering of society. The absence of standardization in the depictions of males precludes us from claiming that this gendering took the form familiar to us today.

4) A comparison of figurative art from the Willendorf-Kostenki-Avdeevo cultural entity, which dates before the LGM, indicates the presence of many shared motifs. First among these is the depiction of animals in art, with carnivores dominating Moravian inventories and herbivorous prey species those from the Russian Plain. Moravian ceramic data suggest that the production of this category of art objects was more important for its performance value. The highly fragmented state of the Russian marl figurines may reflect the same phenomenon as well. At the same time, both regions have animals sculpted in ivory and bone. The high wear polish in evidence on a number of these pieces suggest prolonged use. Thus, we see a diversity in the use of animal motifs which likely reflects polysemy.

5) A diachronic look at female representation clearly shows progressive schematization and abstraction and the movement from the figurative to geometric system of expression. While before the LGM we see both the figurative and geometric systems used to depict females, the geometric one comes to dominate after some 18,000 BP. As Morphy (1989) has pointed out, the two systems have dramatically different social implications. The meaning of figurative depiction is more accessible to viewers: All who saw the Dolni Vestonice or Kostenki "Venuses" knew them immediately to be females. The meaning of geometric representation, on the other hand, requires decoding. The key to this decoding – an explanation of what stands for what – represents controlled knowledge and presupposes the existence of "decoders." Here again, Upper Paleolithic art offers us yet another tenuous, but redundant and internally consistent, line of evidence of increasing sociocultural complexity after 18,000 BP.

7) Elaborating on the issue of increasing social complexity, I also suggest that the increasing complexity of the social world is reflected in the distribution of animal art after the LGM. Naturalistic or recognizable depictions of animals either in the round or as engravings all but disappear, continuing only at the sparsely populated peripheries, in Moravia and the southern Urals. In the first case, this art is clearly the art of very mobile recolonizers. I suspect an analogous colonizing scenario for the much more poorly known regions of the Urals.

I read the Moravia to Mezin trajectory in animal *vs.* female depiction to mean the decrease in the importance of influencing "nature" and the increase in the semantic importance of manipulable "culture," more specifically of the social, of people-to-people relationships. I do not argue that this trajectory has a universal or evolutionary significance, however. Coeval Urals and Moravian data contradict this. Rather, I see it as a region specific phenomenon which reflects demographic and sociopolitical factors, namely, increased density of occupation, increased group size, and increased duration of occupation at the sites.

8) A diachronic look at the portability or permanence of artistic expression in Central and Eastern Europe shows the late appearance of permanent or parietal art here. If, following Root (1984) we see stylistic marking in portable media reflecting egalitarian relationships, and the marking of place, such as is clearly the case with painted mammoth bones and architectural art, as associated with hierarchical relationships, this line of evidence shows that changes in sociopolitical relationships suggested by other data are also reflected in the types of art produced. This relationship, however, is clearly not a universal one either, because permanent locations, such as caves, can serve as temporary aggregation sites and bear witness to corporate group demarcation.

9) Art from Moravia and from the Russian Plain clearly indicates that the proliferation of artistic expression in multiple media occurs from the Early Upper Paleolithic onward. This negates the recent claims by some scholars that the "creative explosion" – something interpreted as characterizing fully modern human behavior – occurred only after the LGM, and dates younger than 20-18,000 BP (*e.g.,* Lindly and Clark 1991). While this pattern may be true for Western Europe and the Levant, as demonstrated above, it is clearly not true for Central and Eastern Europe.

10) The intensity of this expression, as measured by diversity and volume, did not increase in time. Central and East European regional records indicate a waxing and waning in the production and use of art (Figure 9). This contrasts with the Franco-Cantabrian record which does show an early appearance of beads and pendants, but where portable and parietal art shows increasing intensity after the LGM.

Central and Eastern European data show peaks of artistic production occurring at different times in different places. If we take art production to reflect cultural elaboration, we see that such elaboration does not build upon itself. While the break in art production in Moravia can be explained by invoking the depopulation of the region around the LGM, the same does not hold true for the Russian Plain. This explanation is also invalid for both regions if we compare across the Pleistocene-Holocene rubicon. Early Mesolithic hunter-gatherers were present in both regions; yet, by and large, art was not (Bonsall 1990; Rybakov 1989). It is absent, I suggest, not because of decreased capacity, or of prior cognition, or because the climate became benign and conifers or oaks replaced grasslands, but because the social landscape had changed once again to a more minimalist one.

11) Taking a global view at the distribution of Late Pleistocene art, we can enter some corrections to the arguments that it is an example of cultural elaboration found among climatically stressed groups of northern latitude hunter-gatherers (Gamble & Soffer 1991). The proliferation of Moravian art and of art at the Kostenki-Avdeevo sites occurred at interstadial times, before the LGM, and not at peak stadial conditions. The same is true for art from the central Russian Plain which comes well after the 20-18,000 BP cold vice. The climate has little to do with it directly. Moravian art at 25,000 BP is not about climate but about dense human settlement.

The climate did affect demographic arrangements of people across the landscape. Deteriorating conditions at the onset of the LGM did bring about demographic shifts which probably ultimately led some groups from Central Europe onto the Russian Plain (Grigor'ev 1993; Soffer 1993). In some, but not all cases, these demographic shifts resulted in complex social landscapes negotiated through the production and use of art. Yet population influxes, in and of themselves, did not guarantee the production of art. Extant data from the Russian and Ukrainian southern steppe zone also indicate possible population influx at as well as after the LGM (Leonova 1994). These influxes, however, did not result in the proliferation of portable or parietal art.

Nor, clearly, are population influxes needed for the production of art. On the central Russian Plain the linearization of the natural resources after the LGM led to the linearization of hunter-gatherer settlements. This created more complex social landscapes which were mediated through, among other things, the manipulation of art (Soffer 1985).

12) Furthermore, the artistic record of Central and Eastern Europe also undermines the recent universalizing claims about the isomorphy of artistic expression and specific mechanisms of social interaction, namely, the existence of aggregation-dispersal pulsations across the Late Pleistocene world (Barton *et al.* 1994). The Gravettian data from Central and Eastern Europe indicate that while such pulsations may have been part and parcel of settlement systems in Moravia *ca.* 26,000 BP and the eastern part of the Russian Plain *ca.* 22,000 BP, they were absent on the central part of the Russian Plain (Soffer 1985). Their absence, however, did not appreciably affect the volume or diversity of the artistic output. The West European record clearly can no longer be "writ large" to stand for the entire Late Paleolithic oekumene and we would be well advised to stop viewing it as such.

13) Finally, comparing the west to east European Upper Paleolithic art records, we can note after Hodder (1990), that Franco-Cantabrian art, dominated as it is by animal motifs which decorate both cave walls and hunting implements is public art, art of the hunter, art dealing with control of the landscape and of production. From this vantage point, the dominance of female figurines, of decorated domestic objects such as spoons, shovels, and needle cases, and finally painted mammoth bones found inside

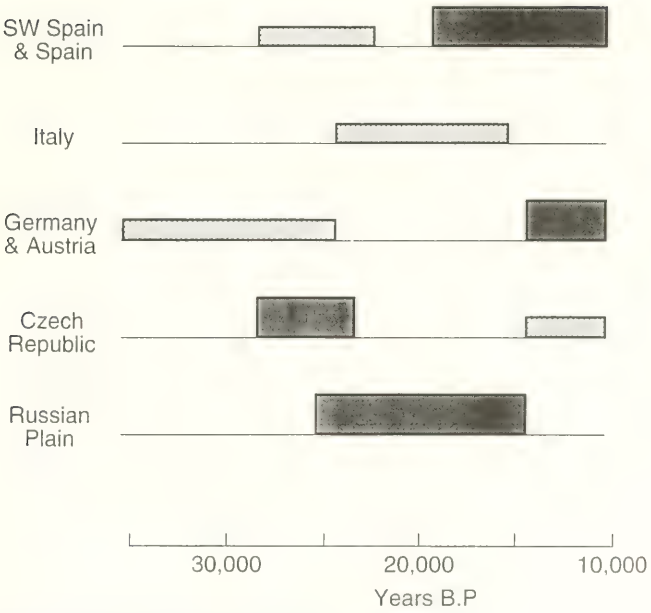

FIGURE 9. The appearance and proliferation of art and jewelry across Upper Paleolithic Europe (after Soffer 1995 Figure 1)

dwellings, which themselves are examples of architectural or parietal art, all can be read as domestic art, reflecting the importance of controlling women and reproduction. The nature of Moravian Magdalenian art and of the art of the Urals negate such a facile west-east dichotomy in world-view and meaning, however. The twain do meet, and this meeting has more to do with how regions are occupied and exploited, and for how long, rather than with long-lasting ethnic or geographic semantic and cultural traditions.

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Section IV

The Interpretive Process

Places of Art: Art and Archaeology in Context

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On my desk sits a row of volumes describing prehistoric representations, largely drawn from Paleolithic Europe with supplements from Australia and Africa. To frame the debates presented in these volumes, I have positioned two works at either end: Sally Price's slender and eloquent *Primitive Art in Civilized Places* (1989), and an issue of the art magazine *Portfolio* (1979/80), featuring Caillebotte's rainy-day "Streets of Paris" on the cover and an article on the legacy of Altamira inside. At first glance it may seem that these two publications would not be immediately germane to a professional archaeologist. However, I would like to begin my discussion of "context" with the local archaeology of my writing site, recalling the disciplinary location of the topic at hand, and the theoretical frame through which we sift the evidence. In the essay that follows I will argue for an understanding of archaeological context that includes an awareness of the present as well as the past, and of historical geography as well as the physical environment surrounding our finds. To begin with the assemblage of works before me then, is only fitting.

This essay discusses prehistoric representation from the perspective of a lithics specialist working in East Central Europe, at two site complexes commonly evoked in debates about "art": Dolní Vestonice/Pavlov and Willendorf (a detailed evaluation of the representational material from the sites is provided by Soffer, this volume). I will suggest that in dealing with prehistoric materials, whether they are figurines or stone tools, we need to pay close attention to the multiple contexts in which we position them. These contexts, both the reconstructed frames of prehistory within archaeological practice, and the social frames of that research, have their own histories, uses, and reasons for existence in the interpretive endeavor. The contrast of treatment between art artifacts and lithic remains illustrates the manner in which archaeological artifacts are subject to different interpretations depending on analytic context. The case of Eastern Europe elucidates the importance of past and present geopolitics in archaeology, and is particularly relevant due to the large number of Paleolithic representations found in this region. By focusing on the central importance of context for archaeological practice, I not only wish to question the adequacy of certain features of

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an art historical approach to prehistoric materials, but also to propose that a greater awareness of context in archaeological analysis will enhance our comparative methodology, opening new avenues for approaching meaning of artifacts in past societies.

Contexts: Conceptual and Practical

The appearance of an article on Altamira in *Portfolio* reflects a central tradition within archaeological interpretations of the prehistoric record, a tradition that falls directly within the range of arguments presented in *Primitive Art in Civilized Places*. The world of prehistoric art stretches between the murky depths of "primitive art," representation produced by traditions outside the scope of history, and the high skies of "art history," representation produced by traditions within the outlines of world civilization (Davis 1993). Prehistoric art thus comprises a field of origin for both the "primitive" and the "civilized," providing each side of that lingering binary with a frame in the past. The roots of Caillebotte cross with those of artists known by cultural tradition rather than name, and terms drawn from the study of art as well as from the study of material culture infuse archaeological explanation of prehistoric representation.

Geographic context plays a curious role in the ordering of both "high" and "low" representation, at once central and empty. On the one hand we have 19th century modernist rigor, the language of style ("Gothic," "Baroque," *etc.)* isolating objects within rigid, and often transcendent categories of place, time and type. On the other hand we have 20th century postmodern pastiche, consciously mixing materials and contexts, challenging the notion of authenticity (Figure 1). Yet as Meyers (1994: 680) and Price (1989) point out, both order and melange occur in distinctively Western locales. Bringing disparate items of art together into one place, be it a geographic center (Paris or New York), or an intellectual frame (writing, presentations, or academic debates), does not erase the historical trajectories of these places (Appiah 1991). It remains pertinent to ask *where* rock paintings, figurines, or body ornaments allow connection with present day artistic representations of ethnographically observed people, and where they do not. In which regions of the world do we find the prehistoric and the historic united in one interpretive frame? And in which parts of the world do we find modern terms of high art (such as "galleries," "altars," "artists") used to describe ancient relics? Decades of criticism notwithstanding, analyses of prehistoric materials continue to use well-traveled routes of analysis, including the one running between the language of the primitive and that of the civilized (Gamble 1993: 46-47).

Here I will address the issue of "context" on two levels, one conceptual and one practical. On a conceptual level I question the appropriateness of the term "art" relative to prehistoric representations, suggesting that the category of art is not only inappropriate from an epistemological standpoint but also a hindrance to archaeological research, due to the conceptual attachments that it has in fields such as art history or aesthetics. Although some archaeologists who have dealt with prehistoric symbol systems in the past have considered theories of art (*e.g.*, Bahn & Vertut 1988; Leroi-Gourhan 1965, 1982; Ucko & Rosenfeld 1967), I maintain that the integration of theoretical frameworks current in art history at present does not appear particularly fruitful for archaeological research without a significant modification of concepts central in both domains. Art history, the disciplinary center for analysis of visual art (as opposed to domains of creativity or performance), uses some conceptual tools and theoretical approaches that are applicable to prehistoric materials. However, these

FIGURE 1. An example of blurred temporal, stylistic and geographic traditions used in archaeological illustrations of "art," which collapse time, space, and ultimately identity under a uniform aesthetic category. Here artifacts from many sites and periods combine into one vast, transcendental ritual. (Illustration by J. K. Townsend of J. Pfeiffer, 1986.)

techniques play a different role in the analysis of representational systems, best exemplified by the divergent use of "context" in art aesthetics and in anthropology.

The second contextual theme involves a more literal ordering of the past in the present: the greater maps of archaeological research. The geographical delineation of research within contemporary boundaries of nation-states constructs a stage for our

prehistoric narratives. A passive acceptance of present political borders frames models of the past, and limits the number of alternatives that archaeologists suggest in interpreting the archaeological record. Using the case of Central Europe, I will illustrate how present maps limit our vision of what comparisons are appropriate to make. In concluding, I suggest that a renewed and reflective attention to analytic problems of framing may open up contexts other than those to which we have become accustomed.

The Meanings of Art

Although Conkey (1983, 1987, 1993, this volume) and White (1992, 1993) have repeatedly and convincingly argued against the use of the term "art" in the analysis of prehistoric representations, this practice persists, either with some qualifications amid claims of convenience and parsimony (*e.g.,* Talalay, 1993:7: "... art remains a very convenient term to use..."), or nonchalantly, as if some general, tacit agreement about the concept has been accepted (most writings on the subject from the 1970's and 1980's, but also more recently, *e.g.,* Barton *et al.* 1994). Most scholars who deal with rock paintings or objects recovered from prehistoric contexts that cannot be explained in utilitarian terms and are thus categorized as decorative, ritual or symbolic, are aware of the trap posed by the term "art" (*e.g.,* Bar-Yosef, Soffer this volume). Once this regrettable circumstance has been noted, however, it is treated as a semantic problem, something self-evident, marginal, and ultimately inconsequential for the interpretation of prehistoric materials. Yet it is precisely such semantic nuances that reveal the outlines of our own cultural typology, and, as Price (1989) reminds us, apportion value. The terms that we choose have linguistic contexts beyond our texts that we cannot ignore, if we are to move beyond the descriptive stages of antiquarianism and deepen our understanding of representation.

The historical shallowness of "art" as a uniquely aesthetic marker is not difficult to demonstrate. Following the English cognate, we find that in the 16th century, the term art not only referred to the liberal arts (grammar, logic, rhetoric, arithmetic, geometry, music, astronomy) but also was used to describe any skilled person. Only with the 17th century does the more specialized notion of fine art as composed of painting, sculpture, engraving and drawing appear, but this use did not become dominant until the 19th century. At this time an artist was contrasted to an artisan –a skilled manual worker lacking intellectual, imaginative, or creative purpose (Williams 1983:41). The creative and imaginative became a part of the classificatory vocabulary describing the separate space inhabited by those involved in art production, the unusual – and superior – state of mind, body and/or spirit that was unlike that of ordinary people. This 19th century understanding of creativity as a special separate practice that only few endowed individuals engage in, separate from profane unimaginative skilled work, remains with us to this day, and has deeply affected our investigation of prehistoric symbolic activities that we label art. This assumption allows the positioning of the cave paintings as "masterpieces" that are treated separately from any other prehistoric production, as the "culmination" of a vast, pan-European artistic tradition lasting many millennia (*e.g.,* Bahn & Vertut 1988, although a debate leading away from this perception has occurred, *e.g.,* Conkey 1984, 1993; Davis 1986 and comments; the responses to the discovery of both caves Cosquer and Chauvet were a reminder of the entrenched beliefs about the centrality of the French cave paintings). The historical track of the term "art" over the past three centuries suggests that it comes hedged with preconceptions, leaving only a narrow corridor of possible interpretation. The

discussion of these issues by Lorblanchet (1992:115-6), nicely illustrates the conceptual conflation at stake. In an otherwise critical article, he defends the use of the term "art," claiming that its contemporary meaning in French covers all artificial (nonnatural) things, relying on a La Rousse definition of the term. However, only a quick look in *Le Grande Robert Dictionnaire de la Langue Française* shows the lengthy etymological development from the 13th century meaning of art as "la technique manuelle" to the 1786 appearance of "arts et métiers," that was only one step removed from the 19th century common usage of "Beaux-arts," influenced by "l'esthetique allemande," as the meaning of the term (*Le Grande Robert* 1985:568-70). Yet the example Lorblanchet gives is a list of cultural and aesthetic styles ("Greek art, Gothic art, Assyrian art, abstract art, primitive art, cave art"). In the course of this list an older, general sense of craft slides easily into a modern categorization of exceptional creative expression. The field of vision narrows, and the "useful" products of prehistoric craft, such as stone tools, are left aside. Here we might recall that such restricted senses of art take firmest hold at a point when the lingering sense of the Greek root *techne* that once encompassed seeds of both art and technology fades, partly in association with industrialism and the rise of modern forms of science (Williams 1983).

In addition to reminding ourselves of the linguistic novelty of our contemporary definitions of "art," it is even more important to consider how "context" has been constructed and understood in art history as well as archaeology. Although a multiplicity of theoretical approaches inhabit contemporary art history, depending on the author's conceptual orientation, subject matter, as well as the historical and geographical focus of the study, one of the themes frequently discussed is the role of context (Clark 1989; Eaton 1995; Freedberg 1994; Price 1989). Yet the use of the same term in anthropology and art history is misleading, since the investigation of context in art history involves two clear poles of production and consumption (the artist and the audience) that remain uncertain in prehistoric settings. A brief discussion of the uses of context in art and archaeology will further clarify the distinctions between them.

Context in Art and Archaeology

Art history addresses works of art through the lens of aesthetics, considering either motive, message, a moment of the artist's talent, or the (timeless) response that any piece may evoke in its viewers (Eaton 1995; Freedberg 1994). The art object provides the means for an exploration of transcendental aesthetic quality, the attribute that must infuse any such piece to provide it with meaning, and resonates with the sensibilities of the audience. This connection is seen as an emotional response, outside the rational reasoning of everyday activities. The focus is not on the contextual role of the object, since the basic aesthetic function of the piece is not in doubt. As Price (1989:83) reminds us: "For displays presenting objects *as art*, the implied definition of what should 'happen' between object and viewer is relatively constant; the museum's visitor's task-pleasure, ... is conceptualized first and foremost as a perceptual-emotional experience, not a cognitive educational one." Objects that are considered ethnographic, not art, *i.e.,* mundane things, receive the explanatory treatment, and cultural context is deemed relevant for their understanding. Nowhere is this expressed more strongly than in the distinction between ethnographic objects and art when discussing "primitive art," as shown in the 1995 debate over the standing of an African art exhibit in the London Royal Academy (Riding 1995):

> Until now, African pottery, wooden carvings and textiles had been viewed essentially as handicraft because, it was argued, the religious, military, sexual or decorative functions of the works suggested that they had not been created as art, to be appreciated for their own sake. Even after "primitive" African art inspired Picasso, Brancusi, Braque, Modigliani and Henry Moore earlier this century, it was its magical and mystical quality that counted most. But at the Royal Academy, objects made by African hands are separated from their cultural context and can be judged simply as art.

The objects have been elevated to the status of art once they have been cleansed of their social and cultural context, judged only by the response that they are capable of evoking. This approach is rooted in a disregard of context, in the anthropological or archaeological sense, focusing on a "deeper" connection between an art object and the viewer: the pure context of beauty. Here lies one of the crucial divides between a discussion of prehistoric art and pure art, as it is understood by traditional art history. In archaeological research, context is essential for understanding the nature of the particular prehistoric society in question. An archaeologist views context as the methodological and interpretive basis for understanding the past: "The contextual approach is based upon the conviction that archaeologists need to examine all possible aspects of an archaeological culture in order to understand the significance of each part of it" (Trigger 1989:349).

The separation of an artist and an artisan in discussion of art is not only a semantic distinction, but also provides entirely different theoretical and conceptual tools with which products of each are approached. The belief persists that art is produced by people with some special talent, outside common everyday experience. The emotional response to a work of art is supposed to provide the connection between the viewer and the artists across intervening cultures. Only on the basis of this assumption can Nodelman (1979/80:55) write in his discussion of the Altamira cave in *Portfolio* that "Interestingly enough, much in the art of the twentieth century – from the Cubist denial that things can be in only one place at one time, to the later abandonment of the frame and pedestal and the recent interest of artists in natural processes – presents striking analogies to certain aspects of the [Paleolithic] system." Such a statement is possible only through the suspension of social context, and any role it may have played in the creation of the Altamira images, as well as Cubist paintings, in favor of a belief in transcendental aesthetics. It is clear, if unstated, that a connection is being made across time but not really across space, as the art of the twentieth century and the prehistoric paintings are both located in Western Europe, thus assuming a traceable link between the two, and making it possible to speak of "The Legacy of Altamira" (Nodelman 1979/80). Archaeology, as it is practiced today, cannot quite comfortably operationalize such a concept of art, and will be making much greater progress following suggestions of Conkey (1993) and White (1992; this volume, p. 97) in treating prehistoric representations as artifacts to be investigated in an archaeological context, rather than appealing to transcendental aesthetic sensibilities of a Western tradition.

> Art often is a category from our own histories and experiences that renders the past comfortingly familiar. Although it is certainly justifiable for us to call these images art, in that they often strike a resonant chord with what we think art is all about, we have to inquire into these images in other terms and from other perspectives if we are not merely to replicate the present (Conkey 1993:115).

Maps as Spatial Contexts of Art and Archaeology

The distinction of sacred and profane, art and artifact includes a spatial component. The contexts upon which the study of symbolic representations draws, be they local ethnographies as is the case of the South African or Australian rock paintings, or the lifeways of distant circumpolar peoples sometimes invoked in connection with Ice Age occupations, involve geographic analogy. In the case of "primitive art," a historical continuity is presumed between past and present on the basis of locale, while in the case of European prehistory, historical continuity can be bypassed on the basis of assumed similarity in environmental conditions. The present outside the West functions as the past within it, understood through analogy elsewhere. Under the guise of neutral geographic interpretation, we find persistent divisions of the world into regions, "worlds," continents, and cultures. These divisions allow an easier handling of smaller spatial units, but at the same time carry qualitative markers. The context that defines a particular region is selectively created in the present, and weighted with the historical conventions that surround it.

A specific example central to our discussion will help demonstrate the general point. On most maps (archaeological as well as otherwise) Europe functions as a clearly demarcated region, with boundaries separating it from other continents. Yet the arbitrariness of the eastern boundary of the continent becomes obvious if one looks at the map of the Eurasian landmass from its geometric center (Figure 2). The center of modern history (Wolf 1982) is not an obvious center of the prehistoric globe. Indeed, if one reads back through history one finds that different empires found different boundaries. But archaeological research (and the institutional apparatus of funding and regulation that underlies it) operates across a grid of contemporary national pasts, and their imagined origins. The continuing narrative of prehistoric art, with its apex in the European (French) Paleolithic, affirms contemporary geography beneath the cultural frames used to interpret it.

In an encouraging recent development, a number of studies have crossed the established boundaries and looked across the border to 'the other side.' Soffer's admira-

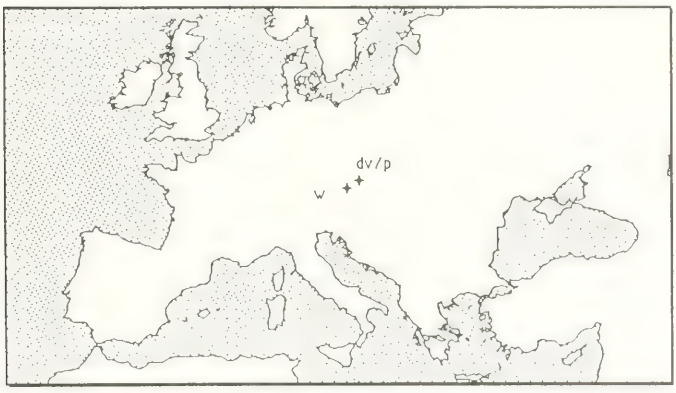

FIGURE 2. Europe or Eurasia: Dolní Věstonice/Pavlov and Willendorf II in Central Europe.

ble coedited volumes *The World at 18,000 BP* (1990), and *From Kostenki to Clovis* (1993) unite spaces from Eastern Europe across Asia to the Bering Strait and the New World. The fact that these studies have appeared only after thaws in the Cold War is a clear sign of the degree to which modern historical events provide a context in which archaeology operates. As Gamble notes in his conclusion to *Kostenki to Clovis* (1993: 313): "We live in interesting political times. Because Paleolithic and Pleistocene archaeology have always reflected contemporary interests, changes in the political map have usually met with a geographical shift in the cradle of human origins or the center from which humanity sprang." The fairly unhindered exchange of ideas, and the comparison of data on such a scale between West and East would have been quite difficult to even imagine just ten years ago.

Yet, only a quick look at the regions represented makes it very clear that the past has been longer and more thoroughly under investigation in some areas than others. Prehistory, and the human past in general, preoccupy the imagination in the West to a much higher degree than in any other part of the globe. Among the twenty nine regional articles in the two volumes of *The World at 18,000 BP*, Europe is represented by eleven, Asia and Africa by six each, and Australia and the Middle East by three each. The overrepresentation of Europe in most our discussions of world prehistory is illustrated by these numbers, particularly if we consider it a western margin of a much larger Eurasian landmass, one that has been probably been occupied for quite some time. The intensity of interest in the past takes a spatial form, represented by the number of studies devoted to regions within a country, individual countries, larger regions, and entire continents. A closer look at *The World at 18,000 BP* (1990) reveals a familiar pattern within the emphasis on Europe: Prehistoric spaces are read through modern places. France receives a thorough treatment in a discussion of its northern regions (the Paris basin) (Schmider 1990), and the South (Rigaud & Simek 1990). Spain (Strauss 1990) and Portugal (Zilhao 1990) are presented in separate chapters, as are Germany (Weniger 1990), Italy (Mussi 1990), and the region of the former Czechoslovakia known as Moravia (Svoboda 1990). The Balkans (Bailey & Gamble 1990), Central Europe (Kozlowski 1990), and the Russian plain (Soffer 1990) start the trend of larger regions involving immense stretches of land in Asia (Northern Eurasia, Central Asia), the entire New World (Frison & Walker 1990), as well as huge segments of Africa (North Africa, tropical Africa, and South Africa), with the exception of Zimbabwe, which receives a chapter of its own (Walker 1990).

The "regional approach" that replicates a national treatment of prehistory is not unique to these two volumes, and in choosing them I do not mean to specifically criticize the authors or suggest some geographic conspiracy on their part. Rather, the reliance on contemporary spatial divisions can be observed in most edited publications of archaeological materials from Europe, regardless of whether they are data oriented or focus on theoretical issues (*e.g.*, Clark 1991, Knecht *et al.* 1993). The context in which prehistoric remains are presented is drawn from within modern geopolitical boundaries and these borders are observed, and rarely crossed in explanation. The use (or absence) of comparison, and the choice of supporting evidence for a claim color any given scenario of the past, in turn presenting modern social and political relationships as long-lasting and natural. Like different filters on a camera, national perspectives emphasize some shades at the exclusion of others, offering vivid, yet highly selective images.

Although most North American archaeologists view European traditions as heavily influenced by national histories, and operating within the historical paradigm, they themselves continue working in national contexts in their fieldwork, and present their

data within brackets of modern political borders (*e.g.,* individual entries in Clark 1991; Dibble & Montet-White 1988; Knecht *et al.* 1993; Soffer & Gamble 1990). Yet what is the justification for outlining the Pleistocene record of Germany in a separate context from that of France or Italy, besides the national tradition of archaeological practice? Moreover, should we not consider what effect this division has on the images of the past that we present? It is plausible that in some places differences in the archaeological record could fall conveniently along contemporary borders, but this coincidence should be investigated and established rather than assumed.

Social Context and Prehistoric Research

The most explicit statement about the geographical circumscription of archaeological practice, and its effects on both fieldwork and interpretations of the prehistoric record can be found in recent discussion focused on the Middle East. Rosen's (1991) remarkable demonstration of the confrontation of geopolitical reality and research traditions highlights the subtlety of the influences, while at the same time reminding us of the pervasiveness of such basic factors as geographic location and history:

> Our biases are more in the realms of geographical interpretations, emphases on particular data sets, and in the semantic nuances of professional jargon. In some ways, these "minor" tendencies are more problematic than the cruder tendencies ... since they are not so obvious. The definition of discrete industries along a modern national border, when it coincides with an apparently geographic one, may be legitimate. The characterization of a specific region as a "culture core" area, and an outlying regions as "peripheral", might be justifiable. However, in both cases we must pause to consider the authors' assumption in their definitions and characterizations, and then consider our own in evaluating theirs. The data themselves are only rarely unambiguous (Rosen 1991:308).

Following Rosen we begin to see how the shape of interpretive patterns in archaeology can rest on differences located beyond individual viewpoint: In intellectual traditions or schools of thought linked to training in a particular area, distinctions between programs in North America or Britain, say, or between national approaches in different European countries that can be recognized in patterns of writing, focus, or research questions. Even more crudely, the simple communication of ideas, contact between researchers, visits to field sites, and examination of archaeological materials are bounded by contemporary considerations, some of them overtly political on a macro scale. In the Levant this results in a complete lack of access to Syrian collections by Israeli scholars, and *vice versa* (Rosen 1990:315-16). Foreign relations of countries in the region are projected onto the prehistoric materials, leaving us to wonder how complete or incomplete our record of Pleistocene occupations, interactions, and movements might be, and to what degree this skews the debates related to the numerous "origins" questions that are posited within this particular area.

Our consciousness of the recent troubled history of the middle east should not mislead us into considering this particular area to be an exception or as an aberration of the normal functioning of a society and science. Rather than an anomaly, I would suggest that the Middle East is better understood as a window, a place where assumptions lie exposed on the surface, and deeper patterns are revealed. French, Czech, or even American archaeologists do not lead lives that would often get press coverage; nevertheless they too are subjected to more subtle but equally entrenched social and political boundaries that they observe, even without the immediacy of a struggle for

national borders. The weight of historical traditions shapes the frame of research, influencing both subject matter and context.

Maps and Contexts of Central/Eastern Europe

The history of archaeology in Central and Eastern Europe provides us with a pole of comparison only one step removed from the Israeli situation. It is worth describing to illustrate that what lies at stake is not only a theoretical paradigm affected by the sociopolitical context (a frequent assumption about bias in science in nonwestern societies), but also the very practice of archaeology: fieldwork, testing, sampling, and all of the usual steps of "objective" science. Research inevitably has to operate within the limits of modern concerns, filtering the past through the present.

Until the 1990's Eastern Europe in general presented a challenge for any international collaboration in scientific projects, particularly in such a sensitive area as archaeology (Kohl 1992; Milisauskas 1990; Soffer 1983). The unavoidable consequence was an alignment of the researchers in the region in the direction of the East and the Soviet Union, and even that alignment was often strained by the fact of political domination. The result of this political context was isolation from Western theoretical developments, and a barrier against incorporating Western archaeological data into comparisons beyond a local scale (Figure 3). A comparison of materials across the border to the West was severely restricted, and consequently most models focused on hypotheses that could be empirically tested within the accessible field. Thus studies addressing exchange of raw materials examined local sources, or those in the neighboring countries that could be visited. The inductive nature of the research led to a design of hypotheses about prehistoric contacts on the basis of the empirical evidence obtained through limited and local scientific interaction. The modern political context thus translated into the prehistoric social context, explained through an entirely legitimate and thorough scientific research. It would be a mistake to imagine that research in Eastern Europe proceeded as a monolithic Stalinist version of science subjected to crude political aims (Fortescue 1990). Rather, the unintended consequences of the political system, and adjustments to the limited range of possibilities became normalized, internalized, and used to the utmost. The resulting structures were both solid and limited, and the prehistoric models developed within them for this particular region share these characteristics. To better illustrate the ways that Central European maps of past and present geographies have intertwined, I will present the area with which I am most familiar, that of Moravia, and the shifting northern borders of the former Austro-Hungarian Empire.

Moravian "Art" Sites in Archaeological Context

The middle section of the former Czechoslovakia, the region known as Moravia lies between the Czech region of Bohemia (to the West), Poland (to the North), Slovakia (to the East) and Austria (to the South). Distances to the German and Hungarian borders (north/west and south/east) are also not great (Figure 3). Given this patchwork of nearby political borders, it is noteworthy that discussions of Moravian sites tend to operate in two disparate contexts, one local and one macroregional, where the settlements are considered to have been the westernmost outposts of the eastern settlement system (*e.g.*, Klíma 1963; Soffer 1987, 1993; Svoboda 1990, 1991). The Upper Palaeolithic settlement is presented as local and independent, with a cultural

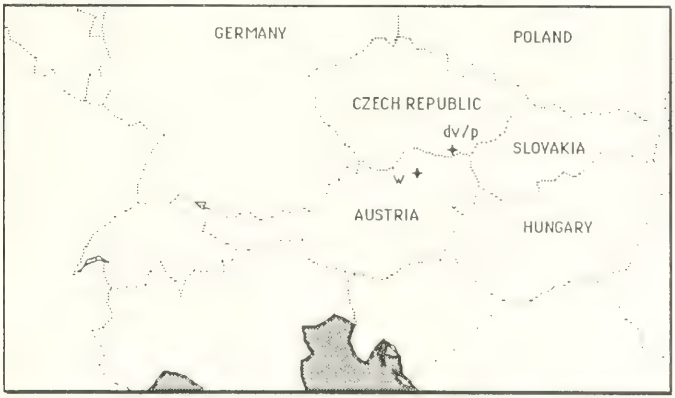

FIGURE 3. Central Europe: Dolní Vestonice/Pavlov and Willendorf II in Europe 1992

tradition of its own: the "Pavlovian" (Klíma 1963, 1983; Svoboda 1991, 1993; Valoch 1980). This "archaeological culture," defined on the basis of stone tool typology, is claimed to be an indigenous development, the only suggested connection being the much later Kostenki sites in the Don basin, possibly derived from the Moravian sites through eastward migration (Klíma 1963, 1983; Kozlowski 1985; Soffer 1985). These particular claims were first made in the Czech context of the early 1960's. They were received at the time in a rather reserved fashion on the Russian side of things, where local (Eastern) origins were then an equally favored explanation (Dolukhanov 1982; Boriskovskii 1980).

Yet if we consider other directions from Moravia besides the distant east, it becomes obvious that other choices for comparison are available, including ones much closer at hand. The Paleolithic occupation of Western Slovakia along the Váh River, for example, lies a minimal distance eastward from the neighboring Pavlov region. The site at Moravany has shown a great promise with a wealth of materials, including an ivory female figurine, drilled animal teeth and shells, fragments of clay figurines in a settlement of a substantial size (Bárta 1965). Yet it is little known in the West partly due to slow progress in excavation, analysis, and publication of even preliminary results, and partly through the lack of its incorporation into previous maps of Paleolithic Europe. That archaeologists working in the neighboring Moravian region did not consider interactions or connections with this site is worthy of greater note. The same can be stated for Paleolithic settlements down river along the Danube in neighboring Hungary, which are treated yet again as separate entities with an unspecified relationship to other sites in the region: "The sites of the Danube Bend form a topographical, chronological and ecological unit within the Upper Paleolithic settlements of Hungary" (Dobosi 1991:197). In both cases, Slovakia and Hungary, the lack of comparison with the Moravian sites is not a result of a lack of awareness of their existence or unfamiliarity with the recovered materials, but rather an excessive stress on local development, and, in the case of Dolní Vestonice or Predmostí, an implicit sense of superiority due to the wealth of the prehistoric artifacts recovered there since the 1920's

(see explicit and implicit statements to that effect in *e.g.*, Absolon 1929, 1938; Klíma 1963; Svoboda 1991, 1994). Recently Montet-White has remarked that "... as research continues to expand in the neighboring areas, the Gravettian of the Pavlov hills no longer appears as the only significant cultural manifestation in the region between 28,000 and 20,000 BP." (Montet-White 1994:483). I would argue that the prominence of the Moravian sites was not necessarily due to a *lack* of other archaeological data from the region, but rather due to a comparative frame of local development that stressed indigenous cultures with minimal contacts in the wider region. As the Moravian sites produced a substantial amount of prehistoric materials, the implicit isolation of the groups occupying them fit comfortably with the present. The habit of staying at home appeared to have had a long tradition, and prehistory justified the lack of contacts in the modern political context.

If close eastern and southeastern localities were not incorporated into the greater Moravian context due to a lack of sufficient, or equally spectacular data as in the Pavlovian, we must still consider why comparisons were not made to the west and southwest, and the influential sites of Lower Austria. A number of settlements in the same ecological zone of the Central European Basin (which includes both modern Lower Austria and the Moravian Plateau) lie geographically close to Pavlov and Dolní Věstonice (less than 100 km away), including some that have been well known internationally since the turn of the century (*e.g.*, Aggsbach, Krems, Willendorf) as well as others actively worked in the 1980's and 1990's (*e.g.*, Alberndorf, Grubgraben, Rosenburg, Stillfried, Stratzing) (Felgenhauer 1956; Otte 1981; Montet-White 1994; Neugebauer-Maresch 1993). Here we find a more complex interplay of historical and political contexts, involving archaeological traditions of typology, greater national traditions of prehistoric research, and the tensions of the Cold War frontier severing Austria from Czechoslovakia and Hungary (Tomásková 1995). The Austrian sites have been understood differently, and their materials treated differently, from the moment of their excavation until the very recent past.

In general accounts of the Paleolithic occupation of Europe, Willendorf occupies a prominent place, though only a basic analysis and typological categorization of its materials have been carried out (Broglio & Laplace 1966; Felgenhauer 1959; Otte 1981). An extensive stratigraphic sequence with dates for several layers, and a relatively detailed description of the recovered materials did not lead to further contemplation of the place of Willendorf in relation to the Moravian sites. Rather, Willendorf would seem to exemplify Soffer's (1993:45) remark: "All of these scenarios, however, considered each site or even cultural layer as a total universe; one that can only be related to others through chronological genetic ties" (Figure 4).

In the 1990's the posited connection of Pavlov – Avdeevo – Kostenki extended to include also Willendorf, and a new "cultural unity", Willendorf – Pavlov – Avdeevo – Kostenki, emerged in some writings (Soffer 1993:44; Grigorev 1993:51-52; Svoboda 1994). Yet none of these new studies specify why this "cultural" relationship has not been considered before, or why it is being proposed at this point in time, if no additional analysis of the Willendorf material appeared, except for the reexamination of the stratigraphic sequence (Haesaerts 1990). Previous regional focus preserved the division by modern countries, and adhered to the division of Western and Eastern Europe, with the uncertain position of Austria – a "Western" country located geographically more to the east than a large segment of the former Czechoslovakia – unquestioned (Otte 1981; Soffer 1985). In the 1990's the borders in the East became more porous, and Willendorf was "reunited" with its eastern neighbors, amid the discovery of the recent Paleolithic sites in Austria (Montet-White 1994; Soffer 1993).

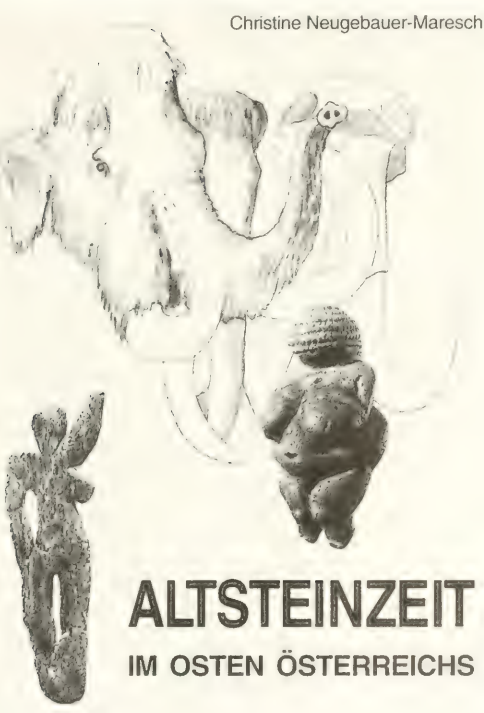

FIGURE 4. Willendorf and Galgenberg statues in a world of mammoths and art (illustration by A. Schumacher, cover page in C. Neugebauer-Maresch, 1993)

However, Willendorf was incorporated without being compared in any systematic fashion, the national tradition lurking under the region.

I emphasize the modern, historical, geopolitical context of the research not as a negation of possible links between sites in the region, but as a cautionary note, a reminder that similarities and comparisons are made at present and are selective. It is plausible that there are major discernible differences between sites that are separated by a modern border, such as Willendorf and Pavlov, just as it is equally plausible that they were occupied by groups that could have had some cultural ties, but either proposition needs to be examined rather than accepted without any support by the archaeological evidence. As Rosen stresses (1991:316):

A research proposal to conduct a regional analysis in effect identifies the region beforehand on the basis of modern perceptions, before the credibility of the notion can be tested against data. Once the assumptions are made, testing them is all the more difficult. Obviously, a major source of this sort of sampling bias is modern political boundaries.

The Pavlov/Willendorf Divide

As a recent study has shown, the Willendorf II female figurine has been *the* single most commonly used Paleolithic image in textbooks and popular discussions of prehistoric art, closely followed by the second most common representation, the female figurine from Dolní Vestonice (Conkey & Tringham 1995). Considering the shared context in which at least the "art" material from these sites has been presented, the lack of scientific comparison between the sites is a genuine puzzle. This silence was even more startling considering the fame and length of excavation at each site (*e.g.*, Absolon 1925; Felgenhauer 1959; Klíma 1963; Svoboda 1994). Only in general discussions of Upper Paleolithic sites in Europe did Willendorf II and Dolní Vestonice appear together, and such work placed them in the general European context without necessarily pointing out their proximity (see general works on the European Paleolithic, *e.g.*, Gamble 1986; Otte 1981).

Between 1990-1994 I conducted research across the border between the former Czechoslovakia (at Dolní Vestonice) and Austria (at Willendorf). The starting point of my investigation was the puzzle presented by the striking absence in the archaeological literature of any detailed comparison between Willendorf II and Dolní Vestonice/Pavlov, despite their geographical and temporal proximity. My initial reaction was that this must be a simple case of a modern boundary projected into the past, the border between Austria and Czechoslovakia (and simultaneously the post-W.W. II border between the West and the East), overshadowing the study of prehistory. It appeared that all that needed to be done was to examine the archaeological materials from both sites, and look for similarities. The extended process of comparison, however, revealed the complexities involved.

Selecting the Gravettian sequence from Willendorf II (layers 5-9) that was temporally in the same range as the complex of sites in Dolní Vestonice and Pavlov (30,000 - 25,000 BP), I compared the lithic artifacts (over 8000 pieces in all) from both localities in terms of typology and use-wear (Tomásková 1995). Rather than accepting the analytical units of the traditional typology, the study examined the consistency in which these typologies were applied within and between the collections from both locations, so as to evaluate the classificatory process itself, before making any judgment in terms of possible prehistoric differences or similarities. It was my intention to show that the process of categorization itself, particularly when dealing with such a cultural construct as the past, is complicated by a number of factors that do not separate smoothly, and whose influence, even when identified, may not be so effortlessly corrected. Upon close examination it became apparent that the use of the standard Gravettian typology varied not only within the collections from Willendorf and Pavlov, but even more between them (Tomásková 1995).

A subsequent use-wear study provided a different analytic field for the same materials, and shifted from the more common studies of production of stone tools to their utility in consumption. The results of the research circumvented the simple distinction of sameness or difference, and provided information that, in combination with other lines of evidence, opened new possible ways of looking at prehistory in the region. Short-and-long term occupations associated with various seasonally determined activities could be suggested at both locations, skirting the question whether

this would result in culturally perceived distinctions. However, at the same time the examination of the historical context of research in the area, and its influence upon the construction of prehistoric geographical regions, also supplied evidence of an unsettling range of layers of social contexts within which the prehistoric materials were also lodged. In suggesting a new focus on consumption and actual use rather than lithic form and perceived function, I would simultaneously call for increased scrutiny of the social and political fields through which we operate, and out of which our disciplinary traditions flow.

Contexts and Comparisons

Although the starting point of my study has been questioning claims of difference between Willendorf and Dolní Vestonice/Pavlov, at the end of it I did not find myself in a position to advocate clear claims of similarity, difference or identity. Rather, one of the issues raised in the examination of the artifacts and the histories of the two sites, was precisely the problem of comparison as a case of polarization: the notion that phenomena, in this case archaeological sites and by extension cultures, can only be *either* of the same kind, *or* different. Once the question is posed in this fashion ("Are they different or the same?") we are forced to eliminate all uncertainty, all ambiguous cases, all gray areas in between, facing only options of a striking similarity or a radical difference. In this way they are like regions, bounded by fixed borders that do not allow crossing, or any state of in-betweenness and which are both posited and reaffirmed in analyses. The very categories that we use to contextualize individual objects limit our vision.

The difficult role of comparison in anthropology is, of course, not a new issue, as a reading of such an ancestral figure as Franz Boas would attest (Boas 1948). His call for the use of historical rather than linear comparative methodology made little headway beyond cultural anthropology, and direct comparison remained a basic tool of archaeological method (Eggan 1953; Hammel 1983). The sporadic archaeological record for a particular temporal sequence seemed a sufficient justification for comparisons over vast geographical distances (*e.g.,* Gamble 1982; Otte 1981; Soffer 1985). A shortage of sufficient data in one area becomes a basis for the incorporation of material from any other area, related geographically, temporally, or ecologically (Wylie 1982).

Yet a closer inspection of published analyses reveals that the comparison of the prehistoric record is also its very construction. Choosing which areas to compare, and which to ignore (*e.g.,* in Germany, Hahn 1983; Weniger 1989), constructs a unique cultural sequence on a territory located between neighboring areas with a generous prehistoric record. Thus my initial question – why were these sites not compared – is partly answered by showing that before any answer can be provided, we need to look at the manner in which comparisons have been conducted, the frame of chosen research questions and the methods applied. Before considering interpretations that are offered for any archaeological pattern, we need to step back and examine what is being compared, and what were the options for the study. The comparative method is a highly selective tool that involves choices on the part of the researcher, and can always serve more than one purpose, whether these are conscious or not. The presence of data in any one area does not automatically lead to placing them into the same context with that of an adjacent area, as it is viewed through a modern day lens, and depends as much on the way of seeing, as on the existence of the evidence itself.

If archaeological regions are circumscribed by modern political entities, and project prehistoric versions of national pasts, it is essential to examine the relationships that are suggested in such a Paleolithic European community. The presence of archaeological remains in most parts of Europe (beyond the extreme northern area) opens a possibility for testing models of interaction at the local, midrange, as well as long distance level.

This question has usually been investigated within the scope of research addressing diffusion, and as Clark notes: "Archaeological studies of diffusion usually assume that interaction among groups in close proximity to one another is not only likely but inevitable (Clark 1994:321)." In a detailed analysis he shows that an assumption of diffusion and/or migration in European Paleolithic archaeology is frequently taken as an explanation in the subsequent interpretation of archaeological materials (Clark 1994). While it is true that in some trends of European Paleolithic archaeology migration and diffusion tend to be the favorite explanatory paradigm (*e.g.,* Kozlowski 1992; Otte 1981; Otte & Keeley 1990), I would hesitate to polarize the models of prehistoric occupation in Europe in terms of *either* migration *or* local independent adaptation, as Clark seems to suggest (Clark 1994). Rather, I would argue that both models are and have been used in European Palaeolithic research, but very selectively, and that significant differences can be detected in national research traditions at different periods. Thus at any given point the role of the present context, that in which the archaeological materials are uncovered or interpreted, cannot be ignored.

An examination of current models of larger mobility trends in the European Paleolithic brings us back to the interplay between this suggested mechanism of culture contact, and the aforementioned sociopolitical context of geography (*e.g.,* Gamble 1986, 1993; Montet-White & Holen 1991; Soffer 1987; Soffer & Gamble 1990). While a substantial Paleolithic record is available in Italy (*e.g.,* Palma di Cesnola 1993), or Greece (*e.g.,* Jacobson 1990; Perles 1989), most migration models rely on the East-West trajectory (*e.g.,* Gamble 1983; Kozlowski 1992; Otte & Keeley 1990, Soffer 1987, 1990), leaving the southern regions to their own fate. Whether one accepts the model of the western refugium (Jochim 1987), or the eastern version of the same (Soffer & Praslov 1993), it appears that the only route considered was between these two points. While the presence of the ice sheets during the Pleistocene affected the appearance of the map of Europe, it did not isolate any one part entirely, particularly not in the South (for a detailed discussion see Velichko & Gabori 1990).

On one hand it may be fairly easy to dismiss migration and diffusion as outdated, suggesting a certain degree of naiveté, as well as hints of expansive national chauvinism along colonial lines (*e.g.,* Renfrew 1989). Yet on the other hand, it is worthwhile to consider models of culture contact and interaction, that cross the local borders and suggest the possibility of social exchange on a larger than a local scale. The material evidence of exotic items, whether they were shells, mollusks, or raw materials, as early as the Aurignacian (*e.g.,* Krems-Hundsteig, Tibava), not to mention the later Gravettian and Magdalenian sites, does suggest either access to distant places, or an exchange over a long distance (Hahn 1977). While social contacts may be chronically difficult to "prove," especially among Paleolithic populations, they should not for that reason alone be utterly eliminated from models of prehistoric behavior (*e.g.,* Rouse 1986). In comparison to some European propensities, North American insistence on local adaptation, low population density, and consequent lack of interaction between groups may appear to be a neutral model (Clark 1994:330), but its strong focus on rugged individualism and survival bears striking resemblance to contempo-

rary American ideology, in addition to resting on an illusion of certain boundaries maintained over enormous stretches of time. We should never lose sight of how partial and imperfect our evidence is.

Conclusion: Recognizing Context

In approaching prehistoric representation, then, an increased awareness of context brings conceptual anachronisms to light. It also opens the possibility of countering our assumptions by working around them. When viewed as "art," the figurines of Willendorf and Dolní Vestonice lift effortlessly out of their local settings into a timeless pan-European tradition of symbolic expression. Associated "nonart" artifacts are left behind, and enter the archaeological record in sites separated by national research traditions. In the first case transcendental aesthetic criteria obscure issues of place, creating an analytic context inappropriate to archaeological analysis (Figure 5). In the second case the social realities of archaeological practice project contemporary conventions onto the past. All too often, the practitioners of archaeology reproduce the maps through which they were taught, retaining political borders even when transgressing them. Such biases of context cannot be simply eliminated by abstract models or some massive program of random sampling. Beyond the naive impracticality of such a vision (perhaps only imaginable within the comfortable amnesia of postwar North America), the shifting conditions of physical as well as political geography and the continual necessity of framing information render it untenable. Contextualization is an inevitable element of any analytic act. Yet by increasing our awareness of the contexts in which we operate, as well as considering paths not chosen, we can begin to consider a wider range of comparison, including pieces of "art" with artifacts.

FIGURE 5. Willendorf Venus Statue by site: Art blown out of context (photograph by O. Soffer)

and relating sites across national borders. The maps we live and think through cannot be erased, but they can be rearranged.

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Archaeological Signatures of the Social Context of Rock Art Production

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A significant trend in recent rock art studies in Australia has focused on the concept of art as communication, and hence on identifying the extent of past 'networks of communication' and their role in the adaptive strategies of hunter-gatherer societies in varying environments (for a review of recent trends see Rosenfeld 1992a). Some more recent studies have questioned the dominant role of environmental constraints in the development of Australian prehistory (see, *e.g.,* David and Cole 1990; David 1991; David and Chant 1995; McDonald 1994) but the concept of rock art as an expression of group identity and territoriality remains implicit, as does the model of extended networks in 'high risk' environments, and more bounded networks in fertile or predictable environments.

Quite how rock art articulates territoriality or intergroup communication remains poorly explored despite the continuing relevance of rock art (and other) sites in contemporary Aboriginal society. Anthropological studies of the symbolism and social context of art production have concentrated on the diverse artistic modes in ephemeral or perishable material, that is, those that are not fixed in the landscape, while the archaeological evidence is virtually restricted to rock art. As also emphasized in Davidson's paper, (this volume) different categories of art construct meanings in different spheres of sociality so that the insights gained from anthropological perspectives need to be contextualized in their application to an understanding of rock art. Other material culture from archaeological contexts consists almost exclusively of stone artifacts that are by and large devoid of formal regularities other than those imposed by their technology, and while lithic raw material itself can have symbolic value, this concept is difficult to use archaeologically. Archaeological considerations of symbolic behavior have therefore focused almost exclusively on the development of rock art. Important exceptions are McBryde's (1986) analysis of the distribution of greenstone axes in Victoria, Morwood's (1987) integration of stone arrangements in

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his analysis of southeast Queensland archaeology and Pardoe's (1988) discussion of the significance of cemeteries in maintaining closely bounded descent based social entities in the Riverina region of western New South Wales and Victoria.

Although the chronology of Australian rock art is still based on very little secure dating (Rosenfeld 1994), the evidence available indicates a chronological trend from stylistic uniformity to increasing regionalism. During the later Pleistocene two major stylistic zones can be recognized: Across the greater part of the Continent early rock art appears to consist entirely of petroglyphs with a restricted range of formal motifs, while in Arnhem Land (and probably extending westwards into the Kimberleys) highly detailed figurative paintings are generally also considered to be of Late Pleistocene age. By analogy with the low density and dispersed populations of the present day arid zones, this uniformity of stylistic expression is thought to define broad regions within which very extensive and open networks of relations operated among small dispersed populations throughout the Pleistocene occupation of Australia – despite the varying environmental conditions through time and space. Indeed the modeling of much Pleistocene archaeology on present day Aboriginal adaptive strategies has resulted in the formulation of an extraordinarily static social and ideational history for the 50,000 or so years of colonization of the Continent. An emphasis on the adaptive significance of maintaining communication networks has led to the development of a model which incorporates stylistic expression as an integral component in the process of the initial colonization of the Continent (Smith 1992b), and this has facilitated the uncritical acceptance of very early dates claimed for some Australian rock art.

During the mid- to later Holocene these widespread early styles give way to a more diverse body of rock art with spatially restricted areas of stylistic unity. This has led some authors to suggest the development of more bounded networks as adaptive strategies with changing environments (*e.g.*, Lewis 1988 for West Arnhem Land) or with the development of more specialized extractive technologies (e.g., *Morwood* 1991:4 for the Central Queensland Highlands) during the Holocene. Layton (1992:235ff), on the other hand, while not working within the confines of a processual archaeology, also emphasizes the increased regionalism in rock art after the early-mid Holocene climatic optimum. He examines these Holocene developments in rock art as evidence for adaptive changes in territorial and social organization, possibly heralding the development of clan totemism.

While such functional approaches to the study of rock art have brought it firmly into the arena of mainstream Australian archaeology (and hence of archaeological funding), the analyses proposed, even on a regional scale, remain very coarse grained chronologically and spatially. Equally problematic is their firm anchorage in a narrow and often ecologically focused processualism. This has required little consideration of the particulars of stylistic expression or of choice of subject matter beyond their use in the definition of stylistic unities (but see Lewis 1988), nor has the internal patterning of art sites within a region received much attention (but see McDonald 1991). The full potential of Australian rock art as archaeological information remains untapped, to a large extent because adequate methodologies for its exploitation are only beginning to be explored (*e.g.*, Layton 1992; McDonald 1991; Officer 1991; Rosenfeld 1992b). There has also been little examination of the putative role of rock art in the operation of 'networks of communication' nor on the very nature of rock art as a behavioral manifestation.

In this paper I propose to examine more closely what rock art is, and in particular the nexus between rock art and territoriality in Aboriginal Australia with a view to

finding archaeological correlates. As Forge (1991) has pointed out, the very category rock art is a construct of western archaeology: Its cohesion or its unity as an indigenous cultural product is questionable, and the nature of rock art in relation to other cultural practices therefore needs closer examination if rock art studies are to be integrated meaningfully into archaeological analyses. In view of the emerging focus on rock art as integral to current Australian archaeology, it is pertinent at this stage, to explore particularly what role(s) rock art plays in territorial and other social negotiations, especially in relation to access to subsistence resources.

A first consideration is the proposition that not all features at rock art sites are the same order of cultural manifestation. At least two very distinct categories of features are comprised in what we normally think of as rock art. This issue is dealt with at greater length in two other publications (Rosenfeld 1992b, 1993) and only a brief summary is presented here.

On the one hand there are coherent sets of images the meanings of which are conveyed by virtue of their visual qualities as constrained by conventions of graphic construction, *i.e.*, by style. These artistic systems, in referring to cosmological truths, operate primarily to visually express and mediate supernaturally sanctioned power relationships. Artist and viewer relate to them according to their place in the web of social relations that operate the ideational system.

On the other hand there are also many visual marks at rock art sites, the form of which is purely mechanically determined. While these can also be meaningful, the meanings are not mediated by culturally construed conventions of form. These are the hand stencils or prints, incised grooves, finger flutings, *etc.* As Forge (1991) has pointed out the form of hand stencils is universal and referential meanings are mediated through knowledge of the actor and act of their creation, even if the actors are identified merely as 'the old people' (*i.e.*, our ancestors). Their signification is to individuals acting within certain contexts, but without visual reference to the individual's identity as underpinned by the ideational system. In other words, these rock markings emphasize the individual identity of their maker in contrast to the supraindividual identity that constrains the creation of rock art proper.

Current Aboriginal practice in relation to rock art is arguably our most relevant source of information into its significance. Ethnographic observations, however, are variable according to the context in which they were made, and in the depth of their analyses, but significant conclusions can be reached (for an in depth discussion of the relevance of current Aboriginal practice and perception see Layton 1992: Chapter 5; Layton 1994). In the first place, it is clear that most, if not all Aboriginal rock art has in some sense a meaningful relationship to the locale in which it is executed. There are cultural constraints of varying severity on artists that influence who may paint and what it is appropriate to paint at any locality. Furthermore, most rock art concerns ideas of the dreaming either explicitly or evocatively, or by negation via the 'trickster' spirits that stand in opposition to the ordering principles of the dreaming (Layton 1992:82-86). Exceptions to these generalities are the hand stencils and incised grooves (*i.e.*, the rock markings as defined above) which are made as a personal commemoration, as well as some other personal commemorative images and some sorcery images. Beyond these generalizations, however, the nature of the relationships between the artist, the locality and what is produced become diverse.

A brief overview of the present or recent context of rock art production in some of the major rock art regions of the country explores how creating rock art may articulate with aspects of identity and of territoriality in contemporary or recent Aboriginal society. These regions include those that would fall clearly within the archaeological

notion of the stylistic homogeneity of a bounded network in a predictable environment, for instance the Kimberleys, and by contrast the situation in the Central Region which is one of the inspirational models for the so called 'open network' of archaeological writing, where stylistic expression appears to be poorly differentiated over very extensive tracts of country.

Areas of rock art that constitute geographically bounded regions with internally coherent stylistic expression include for instance the Wandjina art of the west Kimberleys, the stencil art of the Central Queensland Highlands or the distinctive 'x-ray' art of west Arnhem Land. Although, as Officer (1992b) warns our definition of the extent of stylistic regions based on rock art are of necessity conditioned by the natural geology and topography of the country, stylistic variation of sufficient degree enables the definition of distinct foci of artistic expression for many parts of the country. Closer focus on these regions, however, reveals that the degree of internal homogeneity varies, and that the rock art articulates with very different expressions of sociality and territoriality. There are differences in terms of the significance of localities with rock art and of the social contexts of rock art production. In other words there are differences in the relationship between the nature of the rock art, the social significance of the locality and the artist's affiliation to that locality.

The Central Queensland Highlands perhaps conform most closely to the model as conceived archaeologically: A highly distinctive rock art emerges *ca.* 4000 years ago at the same time as technological changes that permit a more efficient extraction of the subsistence resources of the region. This is accompanied by increased site density and a dispersed settlement pattern. By contrast the preceding period is characterized by a low density site distribution anchored to reliable water sources and associated with petroglyphs that delimit the eastern extent of the Pleistocene petroglyph style. Morwood (1984, 1991) has interpreted this mid-Holocene development, and particularly the emergence of a regionally bounded and distinctive rock art, as an expression of the closing up of networks of communication within a region that had formerly been linked via open networks to other areas further afield.

Morwood (1984) found the ethnographic information for the region to be very incomplete and to relate to a period of stress and conflict with western colonizers. It does not inform directly on the practice or perceptions of rock art. In the recent past the norms of sociality and territoriality were based on matrilineal descent, clan exogamy, and patrilocal residence for men. This insured a dispersed clan membership among territorially focused foraging groups constituted according to male kin. Clan based ceremonies that reaffirm socially constituted identities and spiritual responsibility to territory normally required travel to totemically defined centers. This would tend to require travel beyond a person's habitual foraging range and resulted in the gathering of large numbers of people underwritten by the fruiting of a grove of macrozamia nuts that provide a periodic glut of starch-rich food (Beaton 1982). Such sporadic large gatherings functioned to articulate a multidirectional network of interactions that bound the entire region. However, there is no evidence to suggest that rock shelters or rock art played a role in these ceremonies. The rock art which consists overwhelmingly of hand and other object stencils, occurs mainly in or near camping sites where it marks the patrilineally determined territory, *i.e.*, the habitual foraging range and resources of closely related men and their families. Rock art is also associated with burials placed in natural hollows in the walls of rock shelters, and these paintings tend to comprise more formal motifs (thought perhaps to be clan designs). The burials clearly mark an affiliation between the deceased individual and the locality.

In contrast to the Central Queensland situation the Wandjina paintings of the West Kimberleys are focal localities in a patrilineal clan's estate. These sites define a totemic locus for clan member's ritual obligations and for the expression of their socially constituted identity. Painting or renovation of the Wandjina figure and its associated motifs is integral to these totemic rites and is restricted to appropriate individuals identified according to their assigned cultural identities (usually senior clan men).

The network of communication between clans within each of the two patrimoieties is a tightly structured, linear and directional system known as the Wunan. The Wunan is also conceived of spatially as two interlocking arcs of territory that link the contiguous estates of each moiety's clans along a line of communication (Blundell & Layton 1978). Ritual interactions, exchange, *etc.* operate up or down the line of the Wunan, that is, between members whose clan territories, incorporating their Wandjina art site, are contiguous geographically and symbolically. The system is closed or bounded insofar as it encompasses a determined number of patriclans from three distinct language groups.

A zigzag-like linkage between the two lines of the Wunan is insured by rules of moiety exogamy. It is these affinal relationships that primarily determine a foraging group's seasonal composition and its range. Foraging rights, therefore, extend well beyond the range of a patriclan estate (Blundell & Layton, 1978; Layton 1992:33ff). Thus here, territoriality as expressed in Wandjina rock art is a central organizing concept of West Kimberley cognition (Blundell 1980) but it is not the primary determinant of residence, mobility or foraging group composition. It determines a line of communication according to men's structured identities. Wandjina rock art, however, does not articulate the habitual interpersonal relations that are an important nexus of the 'network of communications' that determine access to subsistence.

There are formal differences between Wandjina paintings but these are seen (by archaeologists, at least) as minor variants upon a highly standardized motif, and this conforms to the theoretical expectations for the symbolic expression of a closely bounded network. Within the Central Queensland Highlands, the rock art is also regionally distinctive, uniform in style and in its dominant motifs. The very different internal structures of sociality and land affiliation that operate in these two areas are not evident from the stylistic analyses available. The stylistic unity of Wandjina rock art articulates the interrelationship between people as social entities, but the directional pattern of its integrative symbolism does not closely parallel the actualization of the communication networks and residence patterns in relation to subsistence. However, since each Wandjina is a totemic increase site the associated plant, animal and other motifs depicted are highly site specific (Layton 1985:449). The clan based totemic focus should thus be recoverable from the geographical distribution of its less dominant motifs. By contrast, the dominance of hand and object stencils in Central Queensland rock art may be seen as an artifact of a largely individualized expression of habitual residence, and not primarily concerned with the articulation of socially constituted identity and ritual, clan based affiliation to territory.

In the rich monsoonal environment of west Arnhem Land a proliferation of painted shelters determines a distinctive rock art province with complex internal stylistic structure. While the principal features of motif, style and color are widespread. Taçon (1993) has identified some regional variation from north to south that corresponds to three major linguistic zones, but the stylistic boundaries between the zones appear to be clinal rather than exclusive. The essential features relevant to the issues of the social context of rock art and territoriality lie in the distinction between the rit-

ual context of art 'of the dreaming' and the secular context of art 'about the dreaming,' and of anecdotal art (Taçon 1992:210-11).

The pattern of land use and custodianship has been well documented in the context of claims under the Aboriginal Land Rights Act of 1976, particularly for the northern groups, who live in the exceptionally rich environment of the wetlands and the river gorges on the margins of the escarpment (Keen 1980). Territorial responsibility is via patrilineal affiliation which determines custodianship of a clan's estate and its sacred localities. Relationship between clans are expressed (in part) through the several localized activities of shared totemic ancestors and this can be manifest in composite imagery: For instance the lines dividing the body parts that together constitute a whole and that characterizes x-ray paintings (Taylor 1989). Sacred localities may have paintings, but unlike the Wandjina art, the paintings do not seem to be a central feature of the site's significance. Rather they act as tangible evidence of ancestral truths (Keen 1980). This art of the dreaming, however, marks patriclan owned localities and is subject to clan based controls of execution which may entail the participation of members from other clans according to totemically sanctioned relationships. The execution or renovation of such sacred rock art articulated the cultural identities and relationships of the participants.

Foraging rights are subject to very little control: Residence, mobility and foraging group composition are loosely patterned, and individuals can operate an open network of communication with the region, quite unlike the structured directionality of the Wunan of the west Kimberleys. This fluidity of rules of access to territory and its resources (Keen 1980) is paralleled in a fluidity of rights to paint nonsacred paintings (Haskovec & Sullivan 1989; Layton 1992:235). These are executed mainly in wet season camps when people forage widely away from the flooded wetlands. Certain motifs, such as the linear human figures of the Oenpelli area define such an essentially secular style (Taçon 1992:205). However, there are other human or animal motifs that can be either sacred or secular according to context and especially the form of their infill design (Taylor 1989:384; Taçon 1989:238). Archaeologists have recognized the different styles of infill, but have interpreted these as chronological variants, not as distinct signifiers (Brandl 1973; Chaloupka 1984). The extent to which the rock art marks territorial affiliation as constituted through social identity or through mere rights of residence is, therefore, expressed in the visual qualities of the art but it is not unambiguously evident from an archaeological perspective.

The large number of camp sites with paintings is one of the most striking characteristics of this region. Many of these paintings commemorate the plentiful nature of resources, either specifically in their subject matter, or more evocatively in the use of the nonsacred x-ray design that connotes concepts of 'rainbowness,' the essence of life force (Taçon 1989). The personalized statement of territorial access here finds expression (in addition to hand stencils) in a visual style that denotes a generalized force of the dreaming, not the specificity that articulates socially constituted identities. In this case, the essentially secular use of formal imagery has blurred the archaeologist's ability to distinguish between expressions of individual and supraindividual identities.

A similar problem arises in the Central Queensland rock art where formal motifs are constructed from a pattern of many small stenciled units created with different objects, parts of objects or varying finger positions (Walsh 1983). This may also blur the archaeologist's ability to distinguish between individualized expression and the formal designs thought to relate to clan identities of the deceased.

Preliminary study of the recent rock art in the Central Ranges suggests that, like the Arnhem Land situation, there are at least two distinct classes of rock art sites. In rock shelters used as camp sites rock art consists mainly of hand stencils and track lines with only rare formal motifs such as circles, arcs, *etc.* The loosely structured syntax of the track lines parallels the art of sand drawings that frequently illustrate or punctuate verbal communication. It may refer to the dreaming but does so at its most secular level (Munn 1973:61). A smaller number of sites that are not camping sites, and some of which are known to be totemic increase sites, contain formally structured designs often unique to the site (and see Layton 1992:236). These designs are created from the same limited motif range of circles, arcs, and lines, usually with fewer tracks (or at Ruguri consisting almost exclusively of emu tracks), and they seem to display greater regularity in their spatial organization. The tighter patterning of these designs suggests parallels with the syntax of the body and object art of ceremonial context such as the range of *guruwari* designs of the Walpiri of the Tanami desert (Munn 1973:119ff).

The use of this limited artistic vocabulary mainly of tracks, circles, arcs, *etc.*, is widely distributed through much of arid Central Australia, and also characterizes the widely distributed petroglyphs that have their origin in the Pleistocene. Smith (1992a) has related the stylistic uniformity of present day Central Australian art motifs to the extensive networks of totemic links that operate here, and she contrasts this to the heterogeneity of the artistic vocabulary that permits the identification of distinct art styles among the more closed social networks of Arnhem Land. However, a recent study by Dickins (1992) demonstrates how superficial the appearance of artistic homogeneity can be. Dickins has been able to distinguish geographical and contextual styles in the shield designs of Central Australia according to their syntax.

Among the Aranda speakers of the Central Ranges patrilineal totemic affiliation is normally dominant, but individuals may choose to emphasize their totem of place of conception or of place of birth in negotiating social relations and access to territory or resources. Furthermore the extensive travels of many totemic ancestors may be called upon to create additional links between persons whose dreamings are at different localities on the same ancestor's travels. Ultimately these can create indirect links that cross the greater part of the Continent from north to south and east to west, and incidentally, also extend into regions with different art styles. In practice it seems those very distant links operated only rarely, but they were central in articulating some of the long distance trading expeditions across the Continent.

This system of different modes and degrees of affiliation opens a multidirectional network of relations for individuals as members of several differently constituted groups (Strehlow 1947). In addition, an emphasis on the system of dual ritual reciprocity insures that individuals have both 'ownership' responsibilities to their own patrilineal totemic sites, and 'management' responsibilities via the matriline.

Thus an individual has potential interests of varying degree to a range of locales or tracts of country, and he/she shares these interests with different sets of other individuals. Group affiliation and territoriality are negotiable according to an individual's life situation and political status. (Habitual residence is often a primary factor in deciding the principal affiliation that is exercised [Peterson 1983]). In situations such as these, knowledge is a particularly valuable commodity, and there is a very high degree of ritual secrecy throughout the Center. Indeed the most effective way of settling territorial disputes is a demonstration of ritual knowledge usually by recounting relevant myths and songs.

Relatively little published material is, as yet, available on the rich and varied rock art of this region, and my discussion is based on an ongoing research project and reference to unpublished reports made in the context of site management and site protection legislation. The archaeological analysis of the more recent rock art in this area is beginning to reveal two contrastive patterns within the same region. One with meandering track lines and hand stencils as its dominant motifs is widely distributed. This art is associated with archaeological evidence of camping sites and thus relates to people's habitual foraging ranges. Another of localized, perhaps unique expressions and with more elaborated motif structure, generally not associated with camping sites appears in its nonsecular context to be expressive of formal relationships. These two categories of rock art sites seem to reflect very different aspects of territorial affiliation.

This parallelism for the dual contextual traits of rock art in the two contrastive environments of the Central Ranges and west Arnhem Land suggests that our models of style in relation to environmental adaptation are inadequate to deal with the full complexity of the realities of rock art production.

So far the discussion has been restricted to a static view of rock art in relation to varying facets of territoriality and the identity of the artist. A further quality of rock art is its relative durability. Once executed it transforms a locality in a manner that is continually socially reconstituted in the process of its observation and, possibly, its repainting or augmentation. The dynamics of the meaning of rock art have been demonstrated for instance in Wardaman country by Merlan (1989). She shows how in the process of rock art perception and understanding features are isolated for exegesis according to the observers' knowledge of the significance of the locality, and this is expressed in terms of social relations to territory as defined through the dreaming. Similar observations are reported by Lewis & Rose (1988) in the Victoria River District and are discussed more extensively by Layton (1992, Chapter 5). Clearly the meanings of rock art, while seen as a legitimization of social territorial affiliations are open to constant renegotiation according to the extent of an individual's cultural knowledge and interests.

With the passage of time, marks that were understood in their individualizing or secular context become assigned to the creation. They acquire the potency of the dreaming in the manner of (what we call) natural features. In this way, both technical marks and images of foreign style can be incorporated into the system of meanings that is contemporary and coherent.

To summarize, rock art can be variously an ancestral creation, a human creation about the dreaming or a human creation about human concerns (*e.g.*, love magic, *etc.*, or commemorative).

The creation or maintenance of ancestral images is restricted to individuals according to their structurally determined identities. The art created in such contexts is narrowly constrained in terms of style and motif. Subject matter and style emphasize the nature of the artist's contextualized relationship to a locale. In its reference to appropriately expressed concepts of the dreaming it expresses his her structurally determined interests in the locale as defined via the legitimacy of the ideational system of social relations. The creation or renovation of such paintings is an act of expressing this classificatory and contextual identity, and of relationship to place via the spiritual power of the 'law.' This rock art therefore expresses and mediates social relations rather than explicitly territorial affiliation. It is an affirmation of *territorial affiliation via social relations* as constructed through cosmological principles.

The execution of rock markings and of nonsacred designs is generally concurrent with rights of residence that are much more inclusive. In these contexts individual presence or concern may be celebrated in art, but this art does not evoke rights of control over place nor of ritual affiliation to it. It makes reference to the artist's individual identity but it does not visually define his/her socially constructed identity.

To that extent rock art in its formal variation may be thought to express and determine a social landscape. But it is one of far greater complexity than that subsumed under the simple model of reciprocity of access to resources between members of territorial groups.

Conclusion

Among the members of a residential group, *i.e.*, one that habitually exploits a particular foraging range, individuals are likely to have differing ritual affiliation to the localities within that range – differing at least between marriage partners, but in some situations also between related same sex members of the group. Furthermore, individuals may belong to several differently constituted networks of communication and have differing territorial interests. Stylistic expression at any rock art site, as well as the artistic mode chosen serve to express the artist's particular level of affiliation according to the social context in which the rock art is produced. Different rock art sites within a region may fulfill different roles, and be subject to varying constraints on artistic expression. Furthermore, as Smith anticipated (1992:40), it is in the art of secular contexts that the uniformity of stylistic expression is likely to be found most widely distributed, while unique or regionally localized motifs may serve to identify internal social/territorial differentiation within a stylistic region. This conclusion suggests there are serious limitations to the analytical potential of the normative descriptions, often validated by statistics, that are widely used in the identification of the characteristics of regional rock art assemblages. The potential analytical significance of rare or highly localized traits is lost in such studies, as is any analysis of internal diversity and of organisational principles.

As far back as 1962, Hiatt wrote about Aboriginal territoriality, ' it is important to distinguish two kinds of relationships between people and land, ritual relationships and economic relatiohships' (Hiatt 1962:284). From the survey presented here, it is clear that some aspects of these separate types of relationships are evidenced in rock art: in the motifs used and in the stylistic conventions used, as illustrated notably in Tacon's study of Arnhem Land rock art. Clearly in an archaeological context it will be difficult to distinguish the internal stylistic boundaries that define contextual meanings. However, with the identification of hand stencils and other mechanical marks as visual statements of the artist's individual rather than social identity, it becomes possible to explore some aspects of past territoriality and sociality as mediated via rock art. Furthermore a preliminary assessment of the rock art in the Central Ranges suggests that the internal patterning of motifs within a site, such as the distinction between structured designs and meandering track lines may also be pertinent to issues of social context.

I would conclude, therefore, that the identity and/or territorial relationships expressed via the several modes of rock art are diverse. In particular that formalized art systems, *i.e.*, those that conform to style conventions operate primarily, though not exclusively, to relate socially constructed identity-place relationships. In their reference to the dreaming, they operate to negotiate the varying degrees of territorial ac-

cess as determined via the constructs of social identities. Mechanically made marks (and also the personal commemorative images) refer to a more individualized relationship, one that finds expression in the interpersonal relations of habitual foraging group compositions and ranges.

In emphasizing the distinction between images that validate the artist's social identity and the individualizing marks, it becomes possible to explore some aspects of past territoriality and sociality as mediated via rock art. While a few years ago Layton (1992:237) concluded from his analysis of the diversity of contextualized rock art expressions that "All these considerations tend to reduce the probability of correctly reconstructing the cultural context of past rock art traditions," I would now maintain that focused regional archaeologies of rock art which combine a consideration of the diversity of form and of syntax, of 'art' versus 'mark,' and of archaeologically defined contexts lead to a more optimistic view of the interpretative potential of rock art in archaeology.

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Processions and Groups: Human Figures, Ritual Occasions and Social Categories in the Rock Paintings of the Western Cape, South Africa

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> "Egyptian artists, as well as many others, construct their representations according to mental images which, in their view, summarize the essential physical character of the objects depicted as opposed to their appearance" (Schafer, *Principles of Egyptian Art* 1974:xi).
>
> "Mediation between the opposite sexual spheres centers around a comprehensive metaphor linking eating and intercourse. Men hunt and eat women as carnivores prey on herbivores" (Biesele, *Women Like Meat* 1993:196).

Our archaeological work in the western Cape is aimed at the writing of a regional history, an account of the lives of people who were eventually substantially impacted and then decimated by colonial events. Painted rock shelters are far more common in the area than other archaeological sources such as cave deposits, shell middens or stone tool scatters, but they are not easy to read. Although paintings have the advan-

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tage of not having been moved from their position of original manufacture, most are undated palimpsests or very residual versions of formerly more detailed pictures.

Despite poor preservation and complex metaphor, we argue here that particular social occasions can be recognized in the groupings of human figures and that particular social categories of person can be read from the conventional depictions. The paintings are not about hunting and gathering but about being a hunter or a gatherer and the assumption of adult roles at the transition from adolescence to adulthood. The suggestion that initiation events and painting conventions referring to initiation are prominent in western Cape paintings prompts us to consider the authorship of paintings and the location of appropriate rock surfaces. The frequent use among ethnographic groups (Biesele 1993; McCall 1970) of verbal metaphors drawn from hunting behavior to refer to sexual and social relations points to a likely source of meaning for the paintings.

The search for meaning in rock art studies in southern Africa has been led by Lewis-Williams. In his early work (1981a) he stressed the role of the eland as "animal de passage" in ritual and social events, and was prepared to identify such events and argue their significance in the interpretation of paintings. Later (Lewis-Williams & Dowson 1989), he has been inclined to give central significance to the actions and experiences of shamans, arguing that even isolated and residual paintings probably reflect the visions of trance, downplaying the recognition of actual occasions. We prefer the earlier formulation because it captures more successfully the significance of the eland in surviving San commentaries (Parkington *et al.* in press). The emphasis on social roles and ritual occasions is consistent with the ethnography of Biesele (1993) and the stories recorded by Bleek and Lloyd (Bleek 1931, 1932, 1933, 1935, 1936; Lloyd 1911), both of which underline the centrality of the tensions of social relationships in San or Bushman expressive culture.

Recently, Solomon has pointed to the significant role of gender in both the stories and the paintings of southern African San (1989, 1991, 1992). We here support her position and agree that much of the painted imagery refers to an expressive vocabulary that is far wider than trance. Our position is that many paintings in the western Cape, but certainly not all, make reference to the social roles allocated to men and women, young and old, and, presumably, though at present less persuasively recognized, to further social distinctions. The paintings, like the stories, become vehicles for expressing appropriate behavior but also opportunities for challenging the established codes.

The Western Cape

Paintings

In recent years we have built a number of bridges between the study of rock paintings and that of excavated materials. The discovery, for example, of paintings showing people hunting with nets and armed with fully recurved (triple-curved) bows (Manhire *et al.* 1985) – neither of which have been documented in excavated collections or early traveler reports – feeds into the broader inquiry into hunting methods and diet, along with analysis of faunal remains. The spatial and temporal patterns of images, which we record by plotting locations, registering superpositioning and identifying chronologically sensitive imagery (such as domestic animals and colonial period artifacts) can be linked to the spatial and temporal patterning in depositional

settlement histories (Yates *et al.* 1994). Rubbing, smearing and repainting of images identifies them securely as artifacts with enduring significance for people who lived, literally, within arm's length of many of the paintings (Yates & Manhire 1991).

In an earlier paper (Manhire *et al.* 1983) we have argued that the distribution of compositions involving large numbers of human figures reflects an uneven spread of the social events depicted and symbolized. Thus compositions that can be seen as dances or conflict scenes are very much restricted to the mountain folds and are rare on the rock surfaces of the sandy coastal plains. This distinction between mountain folds and coastal plains, which we now recognize to involve both time and place, has also emerged in our analyses of ostrich eggshell beads, stone artifact assemblages and faunal remains. These latter, however, have the advantage of being better dated than the paintings (Yates *et al.* 1994). We can show that, after the appearance of pastoralism in the region between about 1800 and 1500 years ago, traditional patterns of stone tool and bead manufacture were retained longer and changed more slowly and less dramatically in the mountains. Along with the higher concentrations of domestic stock and potsherds in coastal plain sites, we have interpreted this as the retention of important elements of prepastoralist settlement and behavior patterns in the more isolated parts of the landscape, where the impact was less severe (Parkington *et al.* 1986; Yates *et al.* 1993; Yates & Smith 1993). It is possible that the depictions of groups of humans in recognizable social contexts also date to this period of residual but threatened survival.

Rock paintings of the western Cape differ substantially from European Paleolithic paintings as well as from many American and Australian rock paintings in being dominated by human figures. This is partly the result of the fact that most human figures are painted in groups (Figures 1-3). Such compositions are, arguably but certainly not simply, reflections of social events or episodes. Following the pioneer work of Maggs (1967, 1971a, 1971b), we try to recognize the character of the social events and derive social information from the paintings in the area. This means exploring the conventional ways in which people of various social categories were depicted and in which groups of human figures were composed. We assume that the painter and contemporary viewer shared the vocabulary of painted conventions.

Motifs are usually recognizable where preservation is good, but, because there are no direct commentaries on the making and meaning of the paintings, we have to depend extensively on archaeological, ethnographic and historical records for the derivation of themes (Panofsky 1962:14). We have recently argued (Parkington *et al.* in press), for example, that the conventionally 'tidy' depiction of a cloak or kaross on male figures is a device to reveal to the viewer the status of the individuals depicted "as opposed to their appearance" (Schafer 1974:xi). Reference to ethnographic photographs and drawings shows that the painted cloaks are not literal images of garments, but resemble the equally conventionalized depiction of eland torsos, albeit turned through 90°. A reading of the texts closest in space and time to the precolonial hunter gatherers of the western Cape (Bleek 1923) supports the notion that the eland was the animal through which young men became hunters (Lewis-Williams 1981a). Stories involving the mantis and the eland are related to the creation of the social category of hunter rather than of people or animals in general. Our suggestion is, then, that cloaked males should be read as initiated men and that the eland should be read as initiator of men, creator of hunters and, because only initiated men may marry, of husbands (Parkington *et al.* in press). Figure 1 is an explicit reference to a male initiation school, and the best evidence we have that such schools were held in the western Cape.

FIG. 14.1 Two lime-coated pebbles bearing human figures from Sevilla with an eland (only) to the left of the lower line. The shaded areas represent red, the white areas yellow and the solid areas black. The scale in this and all other figures is in centimeters.

FIGURE 2 View of female human figures with a smaller male figure, probably a bowman, at right. Colors used except for the lower diamond shaped forms which are yellow.
Location: Boontjieskloof

FIGURE 3. A line of female human figures with a smaller male bowman at right. Color red. Location Boontjieskraal.

Perhaps one of the most enigmatic characteristics of western Cape rock art is the almost total absence of hunting scenes (Maggs 1967:103). Despite the existence of thousands of paintings of men, bows and animals, there are only a handful of paintings of men actively hunting animals with bows. This is surprising given the frequency with which hunts are retold in the camp by men, but perhaps predictable given the social taboo on boasting, and consistent with the modesty demanded of a successful hunter. It may also point to an important distinction between painter and hunter. Apart from the net hunts, in fact, there are few narratively connected associations between human figures and animals. More common are juxtapositions which imply a symbolic rather than a narrative connection. It seems inescapable that the bows, arrows and quivers are shown for some purpose other than that of illustrating their functional context. Along with other conventions, hunting equipment serves to identify people in particular social categories (Parkington *et al.* in press).

Processions

There are many kinds of compositions involving numbers of humans to the extent that a simple typology breaks down. Here we concentrate first on processions, defined loosely as those lines of human figures that share a single directionality, often

use a common but undepicted baseline and show a coherence of form, color and scale. Such processions grade off into more informally grouped humans, but when strongly linear seem often to imply a dance context. Remarkably, processions usually face right and, as noted by Maggs (1967:101) some time ago, are almost always made up of a single sex, although the exceptions are particularly interesting. He pointed out that this corresponds well with the clearly differentiated gender roles ascribed to males and females in San ethnography. We go further and suggest that the processions refer to the most strongly marked gender separations in San ritual life, the initiation or puberty ceremonies held for young men and women.

As with other components of the archaeological record, the most effective approach is to begin with resolved pictures rather than complex palimpsests. Whereas Figure 1 depicts an event from which women are excluded, Figures 2 and 3 are predominantly processions of female figures, each, interestingly, with one or two male figures painted, at least in one case, with opposed directionality. The women are identified by breasts but also have a characteristic posture, not shared with males, which includes an arm outstretched and holding a short stick, spherical and exaggerated buttocks and some details of the delineation of back and thighs. The men have visible penises, carry drawn bows but are rather stick-like in form, unlike the shapely contours of the women. Ethnographically recorded occasions which conform to this dramatis personae are not hard to find. The flirtatious behavior of younger women at a girl's first menstruation dance includes an interaction with an older male or males (Bleek 1928:23). On this occasion, the Eland Bull dance, the women play the roles of female eland, discard their normal dress code, exposing their buttocks, and present to the male in a blatantly sexual manner. The performance seems designed to welcome the new maiden into the company of adult women. In the paintings the males with drawn bows recall the metaphor between hunting and sexual activity (McCall 1970). Solomon has drawn attention to exaggerated buttocks (1989, 1992) and Maggs has long noted the local convention of the spherical buttock on women, which we can suggest denoted the category of sexually mature women and thus 'prey.' This theme is repeated with similar conventions in other compositions in the western Cape, most of which are processional (Figure 4).

In Figure 5 we illustrate a line of male figures processional in the sense of sharing scale, orientation and base line and rendered even more coherent by the repetition along the line of two very specific postures. Although the men are equipped with hunting gear, and are cloaked, the effect of these postures is to suggest a dance rather than a hunt. Barnard (1992:72, referring to Heinz [1966]) reports that among the !Xo "the initiation dance has unique music and dance steps," a comment that recalls this particular procession. At the rear of the line are two female figures that are arguably part of the composition, as might be the elephants below. In this case the women have none of the features ascribed to prey and could be taken as older, perhaps postmenopausal. Whatever their status, they do not confront the men, and are clearly allocated a segregated position in the rear of the line. This picture most likely makes reference to the ritual life of men and perhaps the dances that accompany male initiation (Schapera 1930).

Groups

If we turn our attention away from processions to so-called group scenes, we see some other conventions. Maggs (1971a) first described both the limited distribution and typological coherence of these paintings, which have subsequently been referred

FIGURE 4. A female human figure with exaggerated buttocks. Color red. Location: Boontjieskloof

to elsewhere (Manhire *et al.*1983; Parkington 1989; Parkington *et al.* in press; Yates *et al.* 1985). At the core of this coherence is typically a picture of several human figures, males and females, tightly grouped together, most of them seated but often with a single standing figure, shown under a set of hanging bags and other equipment, sometimes with a clear overarching boundary line. There is some variety of expression, which Maggs (1971a) took as "typological sequence," but which may rather reflect the flexible use of a series of conventions, some of which are used in other kinds of compositions. The key elements seem to be the hanging equipment and the close juxtaposition, even merging, of human figures. Figures 6 and 7 illustrate the set well. Spacing is significantly tighter than in processions, there is no attempt to impart a directionality to the composition and some pictorial closure is often attempted. The participation of several social categories is made clear by the recognizable sex of figures,

FIGURE 5. Part of a long line of human figures from Putslaagte. The rest of the panel is poorly preserved and includes more human figures and at least three elephants which are not shown here. Colour red. The figure on the extreme left has faint traces of a yellow "cloak" and the two females have traces of white within the hook of the head

by associated postures and actions, as well as by the variety of equipment painted. Here again, as in processions, equipment is painted to make a social rather than functional point, in this case that a complete group is intended, located at home in a rock shelter. We should note that the depiction of children is not well substantiated, partly because the use of scale has not yet been adequately researched.

Although Maggs (1971a:219) was reticent about identifying the activity implied in these group scenes, Yates and others (1985:74) have convincingly argued that they are scenes of trance or healing occasions. Women clap and a single male figure usually exhibits features long shown by Lewis-Williams (1981a, 1981b, 1983a, 1983b) to be conventions related to trance experiences. Reference to San ethnography reveals that fundamental features of trance dances are that all members of the group attend, that roles are specified by gender and that the event is held in camp. The composition of group scenes is organized to emphasize precisely these points, with the hanging bags and surrounding painted line adding a local detail in the use of a cave as campsite.

We may ask, as did Maggs (1971a:219), whether the actual numbers of people depicted carry meaning? Maggs' histogram of group sizes (1971a:219, his Figure 1) shows that most groups are smaller than Kalahari ethnography might have predicted, but the Karoo material collected by Bleek and Lloyd (Bleek 1931, 1932, 1933, 1935, 1936; Lloyd 1911) refers more frequently to trancing in domestic contexts than in large gatherings. These details will obviously in part depend on local demographic patterns. What may be worthy of comment is the complete absence of any animal association at these group scenes. No attempt is made to link domestic healing occasions with a particular animal. In fact it is our impression that animals hover near linear dance processions but rarely next to group healing occasions.

Figures 8, 9 and 10, as well as Figure 1, show how elements of the group scene paintings are reused and elaborated to construct other pictures. The first of these is particularly interesting in that the hanging bags and sitting people are placed as a background to a large group of trancing men. These latter are arranged in registers rather like an Egyptian tomb painting, presumably an example of Schafer's aspective as distinct from perspective viewpoint. Surely the men are not meant to be read as 'moving to the right in three lines,' but as 'dancing in large number,' perhaps in a circular formation. In Figure 9, by contrast, the composition is simplified to include two standing, perhaps trancing, males and three seated, clapping females. Note the similarity of the sitting position of these women and at least one of those in Figure 6.

In Figure 10 the painted line that signifies cave or rock shelter is placed around a natural indentation in the rock. Here is also a reminder that, although bows are rarely raised in anger against animals, they are more often shown being used against other people. The suggestion (Yates *et al.* 1985:78) that this may not be a literal fight may be true, but the fact remains that conflict scenes outnumber hunting scenes in the western Cape.

Exclusion and Exposure

Depictions of subsistence scenes, such as the hunting of animals, the gathering of shellfish or the collection of plant foods are almost completely absent from the western Cape, despite paintings of the necessary equipment. Instead some details of the anatomy of people and equipment worn are used to denote different categories of person, particularly the distinctions between men and women and between adolescents

FIGURE 6. A group scene from Sevilla with bags positioned above male and female figures. Color dark red

FIGURE 7. A group scene from Keurbos with human figures partially enclosed by a line and with equipment positioned above. Color red

and adults. The recognition that some of these occasions are initiations, from which some social categories of people were excluded, raises the questions who painted these events, where did they put the paintings and why commit them to material, and thus exposed, form?

The isolation of ritual occasions is often achieved socially rather than spatially, with little distance required between domestic and ritual sites. More important, perhaps, the secrecy of events is often more notional than real, with the emphasis on playing out the role of ignorance rather than 'really' being ignorant. Men may know what women do at a girl's first menstruation dance, but should not flaunt such knowledge or even admit to it. Painting such an occasion would seem a thoroughly material flaunting of knowledge and thus tantamount to attendance. We doubt that those not permitted to attend an event were permitted to paint it. Because both male and female events are depicted, does this mean that both men and women painted? It may do, although older men are a common element in the list of participants. Older men, who no longer expect to kill large animals, who may hunt outside the metaphor with snares

FIGURE 8. The upper part of the panel shows elements of a typical group scene with the lower part filled with trancing men most of whom are shown in a hand-to-mouth position. Color red. Location: Sevill a

and nets rather than bows, and, thus, for whom young women pose no threat, play key roles in both male and female initiations. They are the shamans, the scarifiers, the teachers and the story tellers. Their contribution to the ritual rather than economic well-being of society is a good parallel for the content of rock art, which seems to emphasize ritual rather than economic behavior. Postmenopausal women, again no threat to the successful hunt, may also be shamans and are often key story tellers, but play no role in male initiations (but see Figure 5). Older people seem likely to have been the painters, a parallel to the reference at the beginning of stories to phrases such as "Our mothers told us ... " (Bleek 1931, 1932, 1933, 1935, 1936).

FIGURE 9. Three seated, clapping females facing towards two very faint figures, probably trancing males. Color red. Location: Boontieskloof

FIGURE 10. This apparent conflict scene shows a line of human figures on the left facing towards a tightly packed group of figures partially enclosed within a natural indenta-
[illegible] rock. Colour: red and white. Location: Nqoma

Painting an initiation scene effectively allows the viewer to attend, which raises the question of location. We have previously described paintings as 'domestic artifacts' (Parkington *et al.* in press), noting that they are often found within meters of sleeping and cooking areas. We may be right at one spatial scale but wrong at another. Painted rock shelters are extremely common in the rocky ridges where people preferentially sought living space, so that at the scale of hundreds of meters or a kilometer they are intermingled. But most painted sites have little or no deposit and few stone artifacts or potsherds. We cannot hope to resolve the overprinting of several thousands of years of changing decisions and schedules, but clearly some separation, at the scale of tens or hundreds of meters, is possible between domestic and painted locations, if that were necessary. If a painting reflects an occasion which all are expected to attend, no separation may be required. We might predict such a situation for the group scenes. But, if reference is made to an occasion restricted to people of specific social categories, then a site a few tens of meters away achieves a notional isolation.

There is, of course, another means to achieve isolation, which is by developing esoteric painted conventions that are so transformed, so opaque, as to require verbally transmitted keys. This may be the mechanism adopted in Australia and California, but it does not seem to have been the one used in the western Cape, at least not exclusively. The same conventions are used in both group and procession scenes, although it may be that some of the trance-related imagery, crenellated motifs, for example, had a more restricted distribution in the community.

Here we encounter the major obstacle in using paintings for the writing of histories: Their poor chronological context. With what other changing components of the archaeological record are we to link them? Without an understanding of the changing subject matter and context of manufacture and reuse we can only give them an overarching significance, and one that runs the danger of underestimating change. The evidence we have described here shows that some, at least, of the painting was directed at the underlining of the relationships that were appropriate between male and female, young and old, initiated and uninitiated, animal and human. As well as confirming existing values, the paintings would have been useful vehicles for challenge and change. Whether this was the case for particular time periods more than others, or for particular regions more than others remains to be researched.

The Extended Eland Metaphor

What seems to underpin the ritual roles of men and women in San ethnography, as Lewis-Williams (1981a) and Solomon (1989, 1992) among others have shown, is the concept of threat, or danger (Douglas 1966). Despite abundant evidence to the contrary in reality, men in San thought are perceived as the critical providers and women, after their first menstruation, are identified as a threat to male success. The generation of threat and its containment are played out through the metaphor of the eland, with men and women playing both the roles of male and female eland and those of hunter and prey. The eland is thus the pivotal symbol by which people understood their social and sexual relations (Lewis-Williams 1981a). They were People of the Eland (Vinnicombe 1976). Critical events selected as the signal that individuals have moved into their adult roles are, thus, the first menstruation and the first (eland) kill. A variety of sexual metaphors then develop in relation to hunting and hunting equipment, which prescribe the roles men and women, older men and older women play in

ritual occasions. Many of these metaphors are discussed in Solomon's work (1989, 1992).

There are differences in the treatment as well as the frequencies of animals in the rock paintings of the western Cape. Eland is the most commonly identified species, followed by elephant, although there are large numbers of paintings of small bovids that are difficult to identify to species or genus. Eland depictions are often in processions, almost never figure in compositions involving people and show almost no variety of posture. Elephants are often painted in family groups that include young, are conflated with humans to form elephant headed men and are often associated with surrounding lines and crenellations (Maggs & Sealy 1983; Manhire *et al.* 1983). Small bovids are sometimes associated with nets in hunting scenes (Manhire *et al.* 1985). Because the paintings are a visual component of the expressive life of the painters, we attempt here to account for these differences with reference to Biesele's (1993) work on verbal expressive life among related hunter gatherers in the Kalahari.

The title of her book *Women Like Meat* "implies a world of integrated collaborations between the sexes involving work and foodstuffs, marriage and procreation – negotiations whose continuing success assures the ongoing viability of Ju/'hoan [San or Bushmen] society itself" (Biesele 1993:1). These negotiations are conducted incessantly and in metaphorical terms with "men's hunting ... often symbolically opposed not to the complementary female activity of gathering but rather to women's reproductive capacity" (1993:41). The rites of menarche for girls and the first kill ceremony for boys mark the readiness of young people to adopt these roles.

"Animals are used as metaphorical operators" (Biesele 1993:88), particularly the larger animals which have n!ao, a concept "linking mens' and womens' great procreative powers – childbirth and hunting – to the vitally important polarities of the weather" (1993:87). Smaller bovids such as "(steenbok and duiker) generally do not possess n!ao" (1993:108). The eland, the largest and fattest of the bovids, often fills the metaphorical role of mediator and is specifically implicated in the initiation rites of both sexes. Girls become women (mothers and sexual partners) by becoming eland and boys become men (hunters and sexual partners) by becoming eland. "Ideas regarding hunting involve sympathetic identification of hunters and prey and/or hunters' wives and prey. A sex/food equation is pervasive, and men/animal/deity relationships are ritually important and elaborate" (1993:41).

"The peculiarly intimate identification between hunter and prey in Bushman belief is traceable in part to the period of hunting during which a man can do no more, but must wait for the arrow poison to do its work" (Biesele 1993:90). The metaphorical potential here for allusion to the sexual relations between men and women, where once again, men may introduce the substance (semen/poison) and await the outcome (childbirth/death of prey), is obvious, but points to the urgent need to understand the history of poison use and changes in weaponry (Noli 1993). We suggest that the association of menstruation with hunting disaster is not that "she is obviously at the height of her female procreative power" (Biesele 1993:93) at that time, but that, by the metaphor used, menstruation is a 'failed kill' and will sympathetically bring hunting failure. Adult women bleed and recover, whereas men hope to despatch their prey through a process which involves fatal blood loss.

The interpretations of western Cape paintings we have built up (Manhire *et al.* 1985; Parkington 1989; Parkington *et al.* in press) are consistent with this extended eland metaphor. Figure 1, for example, includes an eland oriented with the initiates and also underlines the identification of the cloaks of initiated men with the bodies of eland. Cloaked men are thus a kind of therianthrope, conflating human and eland. The

use of the spherical buttock to depict sexually active women is a painted parallel to the exposure of buttocks at the eland bull dance performance. Such women are thus also therianthropes of a kind. Paintings of overt sexual behavior are as rare as the depiction of the hunting of choice food animals, with which they could easily be identified. "It is hard to tell, even in ... everyday discourse, which meat-animal or woman- is being discussed. The metaphors tying women to the enchanted hunted prey are so intricate as to defy untangling" (Biesele 1993:197). Paintings such as Figure 11 show that there are visual parallels to the verbal conflation of women and animals that are equally hard to untangle!

Vinnicombe suggested (1976) that the Bushmen of the Drakensberg were People of the Eland, in the sense that they identified closely and spiritually with eland. Lewis-Williams later (1988) felt that the connection was through the shamans who took on the power of eland in trance. We feel closer to the former position, arguing that the eland, as noted by Lewis-Williams earlier (1981a), provides the metaphor for relating social identities to the two preoccupations reported by Biesele (1993) – sex and food. From this we suggest that paintings of eland are more likely metaphors for social categories of person than for shaman. We also suggest that, as shown by Biesele (1993), the metaphors in both verbal and painted imagery refer to conflations that include, but are not restricted to, trance. Trance, we believe, is the medium, the negotiation of social identities the message, of western Cape rock paintings.

FIGURE 11. Two therianthropic figures, the one on the left is clearly female. Color red. Location: Horlosiekop.

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Harnessing the Brain: Vision and Shamanism in Upper Paleolithic Western Europe

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A glance down the list of chapters that constitute this volume reveals something of the character of present-day Upper Paleolithic art research – or, as some writers prefer to say, Upper Paleolithic "image-making" or, still more circumspectly, "mark-making." Two to three decades ago more researchers would have been interested in the grand sweep of Upper Paleolithic art – despite some of its inappropriate connotations, I retain the handy monosyllable. Art for art's sake, totemism, sympathetic magic and binary oppositions, all explanations for the art as a whole, would have been debated. Then, following the death in 1986 of the eminent French prehistorian Andre Leroi-Gourhan, there was a feeling that research of this kind had attempted to fly too high. Tacitly, a moratorium on explanation was declared. Certainly no one was prepared to attempt another grand scheme to replace Leroi-Gourhan's and Annette Laming-Emperaire's binary structuralist hypothesis (Leroi-Gourhan 1968; Laming-Emperaire 1962); indeed, the very notion of an all-encompassing explanation was discredited. Attention therefore began to focus on empirical issues.

Data and Explanation

West European Upper Paleolithic research has produced and still is producing data that are indispensable to new hypothesis construction, and nothing I say here should be seen as critical of good empirical work. Research requires both theory and data. But, in this post-Leroi-Gourhan age, we have to guard against what Richard Bradley (1985:86) has called Mr. Micawber archaeology: Keep at it long enough and something is bound to turn up. When we have "enough" facts their meaning will become evident; in other words, data precede and lead to theory. Empiricism, the philosophical name for Micawberism is, however, not an infallible program for the

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production of explanations (for discussions of empiricism in rock art research see Lewis-Williams 1984, 1989, 1990; Lewis-Williams & Loubser 1986; Tilley 1991). We need some other methodological routes to the uncovering of 'meaning.'

In southern Africa, a historical trajectory markedly different from the European one led not to a moratorium but to an intensification of work aimed at explaining rock art. This difference between European and southern African research is partially explained by the existence of directly relevant southern African ethnography. It was a close reading of this ethnography that led to an understanding of the art that has, in the first place, specific and detailed explanatory power and, secondly, broad methodological implications that extend beyond southern Africa.

In short, the demonstrably multiple fit between aspects of nineteenth- and twentieth-century San ethnography and the highly detailed rock art images of the subcontinent led to a concomitantly detailed explanation: San rock art was, at any rate in large measure, associated with the beliefs, cosmology, experiences, diverse rituals, notions of supernatural power, changing social relations, metaphors, and symbols of San shamanism (*e.g.*, Lewis-Williams 1980, 1981; Lewis-Williams & Dowson 1989; Dowson 1994). At first there was some resistance to this view because two classic interpretations, art for art's sake and sympathetic magic (both inherited from European Upper Paleolithic art research), were deeply entrenched in popular thought and political strategies (Lewis-Williams 1995b). Today, however, the shamanic interpretation is widely accepted, though healthy debate continues on just how much of the art is shamanic and in what sense it is shamanic, and, further, on the nature of other meanings that may be encoded in the art (see papers in Lewis-Williams & Dowson 1994).

But the southern African research trajectory did not end with that specific, ethnographic explanation. Two simple yet crucial points with wider methodological implications became apparent. First, all shamanism is posited on certain kinds of institutionalized altered states of consciousness. Secondly, the nervous system that produces those states is a human universal. Because all human beings have the same nervous system, they have the potential to experience similarly structured visual, aural, somatic, olfactory and gustatory hallucinations, though the meanings ascribed to hallucinations and much of their content are, of course, culturally and historically contingent (Knoll *et al.* 1963; Klüver 1966; Bourguinon 1974; Eichmeier & Hifer 1974; La Barre 1975; Siegel & West 1975; Siegel 1977; Asaad 1980; Asaad & Shapiro 1986). I argue that the southern African work that led to these two observations established a methodology that, together with the empirical work that is now being done in western Europe, will allow us to escape from a purely empiricist approach to Upper Paleolithic art and enable us to essay a bold conjecture, or hypothesis, that is empirically based and that can be evaluated (Lewis-Williams 1991).

The methodology to which I refer eschews the empiricist notion that research moves linearly from data to explanation; instead, this methodology consists in the intertwining of independent, mutually constraining and reinforcing strands of evidence (Wylie 1989). In western European research, these strands include Upper Paleolithic empirical data of many different kinds, neuropsychological research on altered states of consciousness, and multiple analogical arguments that draw on a range of hunter-gatherer ethnography and are founded on strong relations of relevance (Wylie 1982, 1985, 1988). Because this methodology has been published elsewhere (Lewis-Williams 1991, 1995a), I do not rehearse its details here. In essence, it has informed the argument that much Upper Paleolithic parietal imagery was, in some measure, in some ways, shamanic.

This explanation is, of course, not new; it has long been in the air (*e.g.*, Reinach 1903; Levy 1963; Lommel 1967; La Barre 1970; Eliade 1972; Marshack 1972:280, 1976:278-9; Eichmeier & Hifer 1974; Furst 1976; Halifax 1980:3, 17; Pfeiffer 1982; Hedges 1983; Bednarik 1984, 1986; Bahn & Vertut 1988:157-8; Goodman 1988; Smith 1992). Yet it has never been generally accepted, as were art-for-art's-sake, sympathetic magic or, more recently, Leroi-Gourhan's and Laming-Emperaire's structuralist interpretations. The reasons for the relegation of the shamanic interpretation to the periphery of academic interest are no doubt numerous and complex. I simply mention four. First, it has lacked a powerful, articulate and charismatic proponent, like the Abbe Henri Breuil, who remained for many decades committed to the sympathetic magic explanation. Secondly, in more recent times the position has run counter to an important trend in Upper Paleolithic research – adaptation. Rather than granting social, individual and, much worse, psychological factors a prominent formative position, adaptationist writers have preferred to see the making of art as a response to Upper Paleolithic climatic conditions and resultant demography. Thirdly, the shamanic view has never meshed as neatly with contemporary Western philosophical thought as did (at least for a while) Leroi-Gourhan's and Laming-Emperaire's structuralism. Finally and most importantly, the shamanic view has never been fully developed, its exact implications made clear and the arguments in favor of it – especially those recently derived from neuropsychological research – fully set out.

I begin this broad overview by listing the principal features of shamanism; this provides some overall orientation for the sections that follow. Then, having given reasons for suspecting some sort of shamanism in the Upper Paleolithic, I assess the potential of the explanation by considering four specific features of the underground parietal imagery of southwestern France. Next, I comment briefly on some of the ways in which Upper Paleolithic shamans exploited the widely varying topographies of the caves. Finally, I consider, in a preliminary way, the role of shamanism in the changes that took place during the Upper Paleolithic.

Shamanism

Although societies practicing other modes of production sometimes evince elements of shamanism (*e.g.*, the Maya; Freidel *et al.* 1993), I narrow the field to hunter-gatherers and propose ten central characteristics of shamanism as it is practiced in such societies.

In the first place, hunter-gatherer shamanism is fundamentally posited on a range of institutionalized altered states of consciousness. Secondly, the visual, aural and somatic experiences of altered states of consciousness give rise to conceptions of an alternative reality that is frequently tiered. Thirdly, people with special powers and skills, the shamans, are believed to have access to this alternative reality. Fourthly, the behavior of the human nervous system in certain altered states creates the illusion of dissociation from one's body (less commonly understood in hunting and gathering shamanic societies as possession). Shamans use dissociation and other experiences of altered states of consciousness to achieve at least four ends; these ends constitute the next four features of hunter-gatherer shamanism. Shamans are believed to contact spirits and supernatural entities; they heal the sick; they attempt to control the movements and lives of animals; they are believed to have the ability to change the weather. Ninthly, these four functions of shamans, as well as their entrance into an altered state of consciousness, are believed to be facilitated by a variously conceived supernatural

potency, or power. Lastly, this potency is commonly associated with animal-helpers that assist shamans in the performance of their tasks.

In compiling these ten characteristics of hunter-gatherer shamanism I have ex-cluded features that some writers consider important, if not essential, for the classification of a religion as shamanic. I do not, for instance, link shamanism to mental illness of any sort, though some shamans may well suffer from epilepsy, schizophrenia, migraine and a range of other pathological conditions. Nor do I stipulate the number of religious practitioners that a shamanic society may have; some societies have many, others only a few, often politically powerful, shamans. Nor do I stipulate any particular method or methods for the induction of altered states of consciousness. Altered states may be induced by ingestion of psychotropic drugs, rhythmic and audio driving, meditation, sensory deprivation, pain, hyperventilation, and so forth.

If we allow only the ten distinguishing features I have given, the word 'shaman' can be freed from its central Asian Tungus origin and be more widely applied (*cf.* Eliade 1972; Lewis-Williams 1992), even, I argue, to the Upper Paleolithic of western Europe.

Upper Paleolithic Shamanism

There are two major reasons for suspecting some form of shamanism in the Upper Paleolithic.

First, there is evidence to suggest that the ability of the human nervous system to enter altered states and to generate hallucinations is of great antiquity. We do not, of course, know exactly what chimpanzees, baboons, monkeys, cats and dogs experience, but they and many other creatures apparently do hallucinate, not only when psychotropic drugs are administered to them but also sometimes under natural circumstances (Siegel & Jarvik 1975:81-104). The ability to hallucinate is therefore probably a feature not just of the human but of the mammalian nervous system. Consequently, it seems likely that australopithecines hallucinated, highly probable that Neanderthals hallucinated, and certain that at least some of the anatomically modern human beings of the Upper Paleolithic also hallucinated. What australopithecines, Neanderthals and Upper Paleolithic people made of their hallucinations is another question altogether.

Secondly, I point to the ubiquity of shamanism among hunter-gatherer communities (see, among many others, Eliade 1972; Winkelman 1986; Harner 1973; Vitebsky 1995). Whatever differences there may be, hunter-gatherer communities throughout the world and on all continents have religious practitioners who enter altered states of consciousness to perform the tasks I have listed. The widespread occurrence of shamanism results not from diffusion but (in part) from universal neurological inheritance that includes the capacity of the nervous system to enter altered states and the need to make sense of the resultant hallucinations within a foraging community. There seems to be no other explanation for the remarkable similarities between shamanic traditions worldwide. It is therefore probable that some form of shamanism – not necessarily identical to any ethnographically or historically recorded type of shamanism – was practiced by the hunter-gatherers of Upper Paleolithic Europe.

That probability is increased by a more specific consideration of some of the features of Upper Paleolithic imagery. We need to know if components of the imagery of Upper Paleolithic art have anything in common with the mental imagery of altered

states of consciousness. I leave aside mobile and open air art and concentrate on parietal cave art.

Entirely independently of work on Upper Paleolithic art, neuropsychological re-search on altered states of consciousness has identified types of mental imagery and the sequence in which the types are often, but not ineluctably, experienced (see Lewis-Williams & Dowson 1988 for an overview). In the first and 'lightest' stage of altered consciousness people may experience geometric visual percepts that include dots, grids, zigzags, nested catenary curves and meandering lines (*e.g.*, Klåver 1926; Eichmeier & Hifer 1974; Siegel & Jarvik 1975; Asaad & Shapiro 1986). These percepts flicker, scintillate, expand, contract and combine with one another; they are independent of light from an exterior source. They can be experienced with the eyes closed; with open eyes, they are projected onto and partly obliterate veridical visual perception. Because they are wired into the human nervous system, all people, no matter what their cultural background, have the potential to experience the same forms. They are known variously as phosphenes, form constants and entoptic phenomena (on nomenclature, see Tyler 1978). As subjects go further, or deeper, into altered consciousness they enter a second stage in which they sometimes try to make sense of these geometric forms by seeing them as objects or experiences familiar or important to them (Horowitz 1964:514; 1975:177, 178, 181). This process of construal is, unlike the forms themselves, culturally situated. The third and deepest stage is frequently entered via a vortex or tunnel (Siegel 1977; Horowitz 1975:178). In this stage, the geometric forms are peripheral to but sometimes combined with iconic images of animals, people, monsters and highly charged emotional situations (Siegel & Jarvik 1975:127, 143; Siegel 1977:136). The animals, people and objects seen in this stage are often distorted in various ways, but they can also have a startling, life-like 'reality.' Eventually, subjects become part of their own imagery, and they feel themselves to be blending with both geometric and iconic imagery (Klåver 1942:181, 182). It is in this final stage that people sometimes feel themselves to be turning into animals (*e.g.*, Siegel & Jarvik 1975:105) and undergoing other frightening or exalting transformations.

The utility of this neuropsychological model to identify graphic imagery derived from altered states of consciousness may be assessed by slotting it against arts known ethnographically, and therefore independently, to be associated with shamanic altered states of consciousness, such as southern African San rock art (Lewis-Williams 1980, 1981; Lewis-Williams & Dowson 1989), the rock art of the Cosos (Great Basin, North America; Hedges 1982; Whitley 1987, 1988, 1992, 1994a, 1994b), the art of the Tukano (South America; Reichel-Dolmatoff 1972, 1978) and Huichol art (Central America; Berrin 1978). In the iconography of each of these four arts there are geometric motifs isomorphic with the geometric forms of stage one, construed geometrics referable to stage-two, and stage-three iconic images that are sometimes therianthropic and sometimes combined with geometric forms (Lewis-Williams & Dowson 1988). Arts known independently to be associated with shamanic altered states of consciousness thus display a complex set of features – not merely geometric motifs – that fits the set of features established by laboratory research for the mental imagery of altered states of consciousness. If the model is tested against an art not associated with altered states of consciousness, say Rembrandt's work, no such fit will be found (*cf.* Dronfield 1994, 1995).

Having supported the utility of the neuropsychological model, we can apply it to Upper Paleolithic parietal art, an art that is, of course, not known *a priori* to be shamanic. Because this has been done in detail elsewhere (Lewis-Williams & Dowson

1988, 1992; Lewis-Williams 1991), I give only a brief summary of the main points. In the first place, many of the so-called 'signs' of Upper Paleolithic art are referable to one or other category of stage-one geometric mental percepts: dots, zigzags, grids, meandering lines and, less frequently, nested catenary curves (so-called festoons) occur in Upper Paleolithic parietal art. On the other hand, some Upper Paleolithic motifs that are at present usually classified as 'signs' do not appear to be derived from geometric mental percepts. These include spearlike forms and the so-called claviforms and tectiforms (Lewis-Williams & Dowson 1988:Figure 3). What these excluded motifs may represent does not concern us at the moment, but it needs to be said that their exclusion points to a strength rather than a weakness in my argument because it renders invalid the potential criticism that virtually any mark can be interpreted as having been derived from a geometric mental percept.

In any event, the fit between neuropsychologically identified elements of mental imagery and the motifs of Upper Paleolithic parietal art does not end with geometric forms. Upper Paleolithic images referable to stage two and, especially, stage three are also present. By their very nature, stage-two construals are difficult to identify because, if the construal is far advanced, the original geometric form is masked by the representational image into which it is transformed. Possible Upper Paleolithic examples of construal include depictions of ibexes with greatly exaggerated curved horns that recall the nested catenary curves of stage one. Again, it must be emphasized that the meaning or meanings of such depictions is another issue altogether. Stage-three Upper Paleolithic images are clearer. They include therianthropes, anthropomorphs and, of course, animals, many of which are superimposed on or by and juxtaposed with geometric forms – a characteristic of stage-three mental imagery. Sometimes depictions show distorted animals and 'monsters,' but many images are, on the other hand, markedly 'realistic' (Clottes *et al.* 1994). Comparable realism also characterizes much southern African San rock art (Vinnicombe 1976; Lewis-Williams 1981): yet a small, easily overlooked feature sometimes suggests that a San image does not depict a "real" animal, as a superficial glance may suggest (Lewis-Williams & Dowson 1989). It is important to note that the argument I am outlining does not concern geometric motifs alone. It is the presence in Upper Paleolithic parietal art of imagery referable to all three stages that makes the argument compelling (Lewis-Williams 1991).

In sum, the antiquity and ubiquity of altered states of consciousness, the widespread occurrence of shamanism among hunter-gatherers, and formal parallels between elements of the mental imagery of altered states and Upper Paleolithic parietal imagery are three points that suggest that at least some – not necessarily all – parietal art was probably associated with institutionalized hallucinations. In other words, it seems highly probable that some yet to be precisely defined forms of shamanism were present at, probably, all periods of the Upper Paleolithic of western Europe. This very general conclusion contributes significantly and economically (in the sense of economical explanations) to an understanding of numerous otherwise puzzling features of Upper Paleolithic art. I refer to four such features.

Explanatory Power

The first has exercised researchers for a long time. It is indeed one of the key features of Upper Paleolithic parietal art. Frequently, depictions of animals are adjacent to, superimposed by or superimposed on geometric 'signs.' Panels, such as the Apse

at Lascaux (Leroi-Gourhan & Allain 1979) or parts of the Sanctuary at Les Trois Frères (Begouân & Breuil 1958), are so densely covered with both representational and geometric images that some sort of relationship between the two types of image seems inescapable. At one time it was thought that representational imagery evolved out of geometric imagery, but it is now accepted that both types continued to be made throughout the Upper Paleolithic. The contemporaneity of the two kinds of image has led to the suggestion that they derived from two distinct, parallel, perhaps complementary, graphic systems (*e.g.*, Leroi-Gourhan 1968; Marshack 1972). In terms of this view, geometric and representational images are comparable to text and graphs in a book: both may be saying the same thing, though in different ways. Although there may be an element of truth in this two-systems explanation, it does not explain why people maintained the two systems throughout the Upper Paleolithic, why the two types of image crowd one on top of another in a way that baffles and confuses modern Western viewers, nor, significantly, why both geometric and representational images are found in shamanic arts throughout the world.

The answer to the problem is, I argue, straightforward. As we have seen, in certain altered states, the human nervous system produces these two kinds of images – geometric and representational – and they are sometimes superimposed and blended with one another (Siegel 1977:134). The two types are therefore not as different as they appear to modern Westerners: both derive from the same source – the nervous system in certain altered states. Their intimate association in a shamanic art is therefore not a surprise; on the contrary, as the neuropsychological model I have outlined suggests, it is to be expected.

This observation resolves the postulated dichotomy between geometric and representational Upper Paleolithic imagery that has formed the basis and starting point for all classifications of Upper Paleolithic art hitherto devised. Both types of image are in fact representational, for they both represent (by way of complex processes) mental imagery. If a taxonomic distinction is to be drawn between them, it should be posited on the different stages of altered consciousness in which the nervous system generates them and the iconographic contexts which those stages create, not on a supposed distinction between their "representational" and "non-representational" functions.

The second feature of Upper Paleolithic art that the shamanic hypothesis explains is the placing of some parietal images deep underground. Some images are in or near entrances to caves, in shallow rock shelters or in the open air (Bahn 1995) and must therefore have been well or partially lit by natural light; during the Upper Paleolithic, before weathering processes took their toll, there were doubtless many more than there are today. Other images, especially (but not exclusively) those of the Magdalenian, are found a kilometer and more underground in totally dark and silent chambers and passages. Sometimes these images are in small diverticules and chimneys that are hard to find and to which access is sometimes extremely difficult. Moreover, the danger involved in getting to some remote locations should not be underestimated: Deep chasms have to be avoided, and labyrinthine passages have to be negotiated. Upper Paleolithic people had, of course, to traverse these routes assisted by only flickering torches or tallow lamps. These remote, subterranean images have to be seen in the context of shamanic cosmology.

To speak of shamanism in the Upper Paleolithic is to make a statement about cosmology, not just religious belief. All life, economic, social and religious, takes place within and interacts reciprocally with a cosmology. As I have mentioned, the shamanic cosmos is conceived, in the first instance, as comprising two realms, this world and a spirit world. Often, the spirit world is immanent, interdigitating with the

real world. At the same time, these two realms are frequently conceived of as subdivided and layered, the more complex the shamanic society, the more tiered subdivisions of the cosmos (Eliade 1972). I argue that the widespread shamanic notions of a spirit world and a layered cosmos derive, in the first instance, from experiences of altered states of consciousness that are universal: They include a whole range of hallucinations and dreams as well as sensations of flying, rising up, entering a vortex, and passing underground and through water. Altered states of consciousness thus not only create notions of a tiered cosmos; they also afford access to and thereby validate the various divisions of that cosmos. The shamanic cosmos and "proof" of that cosmos constitute a closed system of experiential creation and verification. Universal neurologically generated and verified experiences account, at least in part, for the ubiquity of the shamanic cosmos in one manifestation or another.

The layers of the shamanic cosmos are accessible to shamans as they explore their altered states of consciousness in pursuance of their various tasks. The route of their explorations, what anthropologists sometimes call the *axis mundi* (*e.g.*, Eliade 1972), is conceived of differently in different shamanic societies: it may, for instance, be thought of as a hole in the ground at the back of a shaman's dwelling, the roots of a tree or, significantly, a cave. Always it is some sort of tunnel, a notion that derives, I argue, from the neurologically produced vortex that seems to draw subjects into the third and deepest stage of trance, the stage in which they inhabit a vivid, hallucinatory, but for them intensely real, world. I argue that the neurologically generated concepts of a tiered cosmos and entry into a vortex or tunnel make it highly probable that entry into a cave was, for Upper Paleolithic people, entry into part of the spirit world.

Further, the constriction and sensory deprivation of narrow subterranean passages may not only have replicated the vortex; they may also have contributed to the induction of altered states. Under such circumstances, the experience of the passage and the experience of the vortex may have become inextricably interwoven as 'spiritual' experiences were given topographical materiality. Here is one of the reasons why Western binary oppositions of spirituality and reality, sacred and profane, a material realm and a nonmaterial realm, together with all their various permutations, probably did not obtain in the Upper Paleolithic.

The subterranean passages and chambers were therefore places that afforded close contact with, even penetration of, a spiritual, nether tier of the cosmos. The images that people made there related to the chthonic world. Images were not so much taken underground and 'placed' there as obtained there and fixed there. The hallucinatory, or spirit, world, together with its painted and engraved imagery, was thus invested with materiality and precisely situated cosmologically. Moreover, acts of image making did not merely take place in the spirit world: They also informed and incrementally created that world. There was thus a complex interaction between the topography of the caves, mental imagery and historically situated image making by individuals and groups that, through time, built up and changed the spirit world both conceptually and materially.

This understanding brings me to a third and related feature of Upper Paleolithic art that is difficult to explain outside of the shamanic hypothesis. One of the best known and most consistent features of Upper Paleolithic art is the use that artists made of features of the rock surfaces on which they placed their images (*e.g.*, Graziosi 1960; Ucko & Rosenfeld 1967; Bahn & Vertut 1988). Almost every cave contains examples; I cite but a few.

At Labastide, for instance, the natural contours of the rock provide the dorsal line of a bison; the rest of the animal has been suggested by the addition of a few features

(Figure 1; Omnäs 1982: Figure 154; see also Figure 147, Pl.XIX, no.1). Upper Paleolithic depictions are also often placed so that a small, seemingly insignificant nodule or protuberance forms the eye of an animal. Some of these nodules are so insignificant that one supsects that they were identified and selected by touch rather than by sight. Fingers lightly exploring the walls may have discovered a nodule, and the mind, prepared for the discovery of animals, took it to be an eye.

On a larger scale, a natural rock shape at Comarque seems to have suggested a remarkably realistic horse's head, complete with nostrils and mouth (Leroi-Gourhan 1968: Figure 13); an engraver completed and added details to the form. Human figures occasionally also make use of natural features of the rock. At Le Portel, for example, a red outline human figure is painted so that a protuberance becomes its penis (Bahn & Vertut 1988: Figure 52).

The importance of natural features of the rock is particularly clear at Castillo where a depiction of a bison has been painted to fit undulations in the surface of a stalagmite: the back, tail and hindleg of the depiction fit the shape of the rock. But in order to use the rock in this way the artist had to position the bison vertically (Figure 2; Bahn & Vertut 1988: Figure 53). In doing so, he or she expressed a highly significant difference between the animals of mental imagery and the animals of the real world that, in the nature of things, normally assume horizontality. What was important to the Castillo artist was fitting the bison into the natural features of the rock, not orienting the image so that it would call to mind a real, standing bison.

So far, I have described depictions that present, principally, lateral views of animals. By contrast, in the Salon Noir at Niaux an artist added antlers to a hole in the

FIGURE 1. Labastide (Hautes-Pyrénées, France). Natural rock shape used as dorsal line of a bison. Redrawn from Omnäs (1982: Figure 154)

rock that looks something like the head of a deer as seen face on (Figure 3; Clottes 1995: Figures 142 and 164). At Altamira, in one of the deepest sections of the cave, natural shapes in the rock have been transformed by the addition of painted eyes and, in one case, a black patch that may represent a beard (Leroi-Gourhan 1968: Figures 402-404; Freeman *et al.* 1987:224-233). The same technique has been employed at Gargas (Breuil 1952:Figure 271). At Montespan, a natural rock formation has been similarly transformed into what appears to be an animal head (Leroi-Gourhan 1968: Plate 36). The same effect has been achieved at Rouffignac where a remarkable horse's head has been painted on a flint nodule that juts out from the wall of the cave; the body of the horse seems to be behind the wall (Figure 4). For a final example I cite a depiction in the Chimney at Bernifal: Eyes, nostril and mouth have been added to a natural edge to produce a human face. The effect created by all these images is of human and animal faces looking out of the rock wall, the rest of the bodies being concealed behind the surface of the rock. The figures are not merely painted onto the surface; they become part of and, at the same time, construct the walls of the caves in specific ways.

All the examples I have so far described point to an interaction between the maker of an image and natural features of the rock face. My last examples are especially important because they imply interaction between, not just makers of images and their

FIGURE 2. Castillo (Santander, Spain). Natural shape of stalagmite used to give form to a vertical bison. Redrawn from Ripoll, in Bahn and Vertut (1988: Figure 53)

FIGURE 3. Niaux (Midi-Pyrénées, France). Antlers added to natural cavity to give effect of a deer seen from the front. Redrawn from Clottes (1995: figs 120, 142, 164)

handiwork, but also between viewers and images. Sometimes an undulation in the rock surface becomes the dorsal line of an animal if one's light is held in a specific position; an artist has added legs and some other features to the shadow. By moving one's lamp the image can be made to disappear and reappear. At Niaux, for example, an undulation in the rock has been used as a bison's back; this is especially clear when the light source is held to the left of and somewhat below the image. An artist has added a head, legs, a belly line and a tail. But, like the bison at Castillo, this Niaux animal is positioned vertically in order to exploit natural features of the rock (Clottes 1995: Figures 177 and 180). On a larger scale, the head of one of the well known "spotted horses" at Pech Merle is suggested by a natural feature of the rock, especially when the source of light is in a certain position (Figure 5). But, in this case, the artist distorted the painted horse's head, making it grotesquely small; the rock shape is in fact more realistically proportioned than the painted head. It is as though the rock suggested "horse," yet the artist painted not a "real" horse but a distorted horse, perhaps a "spirit-horse." Many further examples could be given. Indeed, Freeman (Freeman *et al.* 1987:105) points out that the technique of using shadows to complete a depiction "is more common than is usually supposed."

An important reciprocality is implied by these images born of shifting chiaroscuro. On the one hand, the creator of the image holds it in his or her power: A movement of the light source can cause the image to appear out of the murk; another movement causes it to disappear. The creator is master of the image. On the other hand, the image holds its creator in its thrall: if the creator (or subsequent viewer)

FIGURE 4. Rouffignac (Dordogne, France). Horse's head painted on a flint nodule that juts out of the cave wall. Redrawn from Graziosi (1960: Plate 202d)

wishes the image to remain visible, he or she is obliged to maintain a posture that keeps the light source in a certain position. Relax, and the image retreats into the Stygian realm from which it was coaxed. Perhaps more than any other Upper Paleolithic images, these "creatures" (creations) of light and darkness point to a complex interaction between person and spirit, artist and image.

All the intimate and complex relationships between images and rock surfaces that I have described, together with the placing of these images in subterranean locations, are understandable in the light of ethnographically known practices. In some shamanic societies, such as those of North America, but not in others, such as that of the San, the notion of a vision quest is crucial to becoming a shaman and, sometimes, repeated vision quests are required to sustain a shaman's power. A North American quester usually repairs to a remote, isolated place, sometimes a high cliff-top, sometimes a cave (Eliade 1972:50-51, 110-14; Halifax 1980:6), to fast, meditate and in-

FIGURE 5. Pech Merle (Lot, France). Natural shape to right (broken line) suggests a horse's head. Redrawn from Leroi-Gourhan (1968: Figure 64), Graziosi (1960: Plate 196), and other photographs

duce the altered state of consciousness in which he or she will "see" the animal helper that will impart the power necessary for shamanic practice. When the vision of the sought-after animal comes, it bestows shamanic power. It is a vision, it should be noted, that bestows the power, not a real animal.

Upper Paleolithic evidence suggests that parts of the caves, especially the deep passages and small, hidden diverticules, were places where vision quests took place (*cf.* Hayden 1993; Pfeiffer 1982). Certainly, the sensory deprivation afforded by the remote, silent and totally dark chambers, such as the Chamber of Felines in Lascaux, induces altered states of consciousness (La Barre 1975:14; Walker 1981:146; Pfeiffer 1982:211; Siegel & Jarvik 1975). In their various stages of altered states, questers sought, by sight and touch, in the folds and cracks of the rock face visions of powerfull animals. It is as if the rock was a membrane between them and one of the lowest levels of the tiered cosmos; behind the rock lay a realm inhabited by spirit-animals, and the passages and chambers of the cave penetrated deep into that realm.

Such beliefs and rituals also account for the fourth feature of Upper Paleolithic art to which I refer: the various ways in which the walls of numerous Upper Paleolithic caverns were touched and otherwise treated. In some sites, such as Grotte Cosquer, finger-flutings cover most of the walls and parts of the ceilings to a considerable height (Clottes *et al.* 1992:586; Clottes & Courtin 1994). At Hornos de la Pena the so-called finger-flutings are more restricted in distribution: A finger-traced 'grid' surrounds and appears to issue from a natural cavity (Ucko 1992: Plate 9). In another remarkable treatment of cave walls, cavities at Hornos de la Pena were filled with mud and then punctured, apparently with fingers or sticks (Ucko 1992:158, Plates 10 and 11). Ucko remarks, "It is ... inconceivable to us today to understand the nature of such action" (*ibid.*). But, if we allow that Upper Paleolithic people believed that the spirit world lay behind the thin, membranous walls of the underground chambers and passages, the evidence for this and much otherwise incomprehensible behavior can be understood in rational, if not absolutely precise, terms. In a variety of ways, people touched, respected, painted and otherwise ritually treated the cave walls because of

what existed behind their surfaces. The walls were not a meaningless support. They were part of the images, a highly charged context.

The four features of Upper Paleolithic art that I have discussed are thus economically explained by a hypothesis that invokes altered states of consciousness and a shamanic cosmos. Moreover, features that may otherwise be considered unrelated are shown, economically, to be manifestations of a single religious activity – some form of shamanism.

Space and Time

As I pointed out at the beginning of this chapter, there is today an understandable reluctance to accept explanations that purport to cover the entire span of Upper Paleolithic art in all its diversity. Such comprehensive explanations are rightly dismissed as "monolithic." Conkey (1987:414-415) remarks that "there can no longer be a single "meaning" to account for the thousands of images, media, contexts, and uses of what we lump under the term 'Paleolithic art'." I have therefore confined my discussion to west European cave art and have not considered portable art or the arts of other regions. But it also needs to be shown that the shamanic explanation, even within western Europe, is sensitive to temporal, geographical, social and iconographic diversity. Indeed, the shamanic explanation is an effective tool for uncovering and exploring such diversity, not for concealing it. To demonstrate the heuristic potential of this explanation and its sensitivity to diversity, and so refute a potential charge of monolithism, I briefly consider, first, geographic diversity and then temporal diversity.

Individual Caves

Upper Paleolithic people did not "process" caves in a rigid, formularistic way, as Leroi-Gourhan (1968) suggested. Rather they explored and adapted each cave in accordance with its peculiar topography (*cf.* Vialou 1982, 1986) and, most importantly, the particular expression of shamanic cosmology and social relations as it existed at a given time and in a given region. At the same time, we must recognize that the prehistoric entrances to caves are not always known. Moreover, in some caves, the distribution of imagery as it is found today is a palimpsest resulting from changing exploitation of the topography of the cave and changing shamanic beliefs and social relations, as, for example, the dating of the recent discoveries at Grotte Cosquer shows (Clottes *et al.* 1992). It also seems that, even at a given time, Upper Paleolithic people did not adhere rigidly to a single set formula; as in many shamanic societies, there were always idiosyncratic interventions (*cf.* Dowson 1988). In some instances new dating techniques (see Watchman and Clottes, this volume) will sort out what is a function of the passage of time and what is contemporary idiosyncrasy, but the chronological resolution in many instances will not be fine enough to make the necessary discriminations.

Le Gabillou (Dordogne) serves as a fairly simple example of how the distribution of imagery within caves may be understood in terms of the shamanic explanation. This cave is said to date to the early Magdalenian and so to be contemporary with Lascaux (Breuil 1952:310-311; Gaussen 1964; Leroi-Gourhan 1968:317). Unlike many caves that are divided into complex interlinking passages, chambers and diverticules, Le Gabillou comprises only an entrance chamber, that was probably at least partially open to natural light in prehistoric times, and a single straight tunnel that extends from

the entrance chamber for approximately 33 yards (Leroi-Gourhan 1968:317; Gaussen *et al.* in L'Art des Cavernes 1984:225-231). The two parts of the cave need to be considered separately.

It seems that the entrance chamber (now partly destroyed by the construction of a cellar) was decorated with carefully painted images as well as some "simpler" engravings. Some of the painted images may have been communally produced, various classes of people participating ritually and differentially, perhaps hierarchically, in the procurement of pigment and binders, mixing the paint and applying it to the rock (Lewis-Williams, 1995c; see also Vandiver 1983). This seems almost certainly to have been the case in Lascaux, where the remains of scaffolding have been found near very large paintings (Leroi-Gourhan & Allain 1979). The entrance chamber at Le Gabillou may therefore have been a kind of vestibule in which group ceremonies were performed. These communal ceremonies and the paintings themselves may, on some occasions, have prepared the minds of vision questers for what they were to see at the climax of their initiation. The culturally informed component of the deepest stage of trance derives from memory, and the novices were being shown not just pictures of animals but recreations of spirit-animals of the kind that they themselves hoped to see. Their memories were being stocked with desirable images. The entrance chamber was therefore a staging post on the route from this world to the lower tier or tiers of the cosmos.

The tunnel that leads off the entrance chamber at Le Gabillou was excavated in recent times; during the early Magdalenian visitors to the passage were obliged to crawl, and movement was very restricted. The passage images are engraved, often with only a few, sure strokes. There are no elaborately painted images in the passage, although there do appear to be some patches of ocher that may be the remains of paint. The comparatively "simple" execution of the passage images implies that less time was expended on them than on the imagery in the entrance chamber. If, as I suggest, communal, preparatory rituals took place in the entrance chamber, it seems that solitary vision quests were undertaken in the narrow tunnel, where questers, isolated from the community, made more swiftly executed engravings.

The engravings in the tunnel are, moreover, strung out along its entire length. Some sections of the tunnel are slightly more densely engraved than others, but, although some images are overlain by other marks (said by some to be "magical strokes"; Breuil 1952:311), no section is nearly as densely engraved as, say, the Apse at Lascaux.

During the Magdalenian, the Apse was reached by means of a painted and engraved 15 m passage in which it was necessary to crawl or crouch very low (Leroi-Gourhan & Allain 1979: Figure 42). This passage led from the large, richly decorated Hall of the Bulls, into which the prehistoric entrance almost certainly led and in which communal rituals probably took place, past the Apse and on to the Nave and, finally, the very narrow Chamber of Felines, the most remote part of the cave (Leroi-Gourhan & Allain: Figure 313). The Apse was thus an alcove, or side-chamber, on the way from the Hall of the Bulls to the Chamber of Felines, a route that may have been fully traversed only rarely. The Apse is moreover, situated above the Shaft (Leroi-Gourhan & Allain: Figure 53), at the bottom of which is the celebrated group comprising an apparently bird-headed anthropomorph, a "wounded" bison, what may be a bird-headed staff and other images (for a shamanic interpretation of this "scene" see Davenport & Jochim 1988; some researchers now question whether the Apse was connected to the Shaft during the Magdalenian).

In the Apse there seems to have been a determined and sustained effort to place principally engraved but also some painted images in a single area. The complexity of the superimpositions in the comparatively small Apse suggests that the people who made the images were sharing, or desired to share, the acquisition of a special, topographically situated power (Leroi-Gourhan & Allain 1979: 220-88). This power was, I argue, related in complex ways to the different kinds of images in the other, topographically and iconographically distinct, areas of Lascaux.

By contrast, the separated images in the tunnel at Le Gabillou suggest that the acquisition of visions there was of a more individual nature: The people at Le Gabillou did not seek to associate their visions intimately with the visions of others. The different ways of placing imagery in the Apse and the Le Gabillou tunnel thus point to different kinds of social relations between vision questers themselves and, by extension, between shamans and the wider community.

The approach that I advocate is thus able to suggest the different uses to which parts of Le Gabillou (and other caves) may have been put and how various parts of the cave related to the shamanic cosmos.

Image and Change

Social contexts are, of course, not immutable. As the Upper Paleolithic progressed, the historically and geographically situated forms of shamanism changed, and the associated practice of making imagery came to be linked to growing social complexity. Evidence for such change may be found in Upper Paleolithic art and its placement in the caves.

At the beginning of the Upper Paleolithic, Aurignacian "artists" engraved and painted their images in the entrances to caves or, at any rate, as far in as light penetrated, though the deep art at La Grotte Chauvet shows that much variation existed even at that time (Chauvet *et al.* 1995). At this time, access to religious imagery (if not the actual experience) may have been open to all, and the shamanic cosmos may not have been conceived of as tiered. Later, they ventured into totally dark depths, and, certainly by the Magdalenian a few people were traveling considerable distances underground in order to make images, sometimes squeezing through narrow openings or scaling slippery chimneys to reach hidden niches (*e.g.*, Bahn & Vertut 1988; Ucko & Rosenfeld 1967). The leaving of daylight areas to go deeper into the dark caves suggests growing interest in and insistence on spatially distinct ritual areas. The source of increasingly esoteric religious knowledge was being placed farther and farther away from daily life: The deeper into the caverns, the more restricted the access to altered states of consciousness or, more precisely, to those altered states that were defined as the ones that really mattered, a tendency that probably paralleled growing social differentiation (*cf.* Bender 1989; Thomas 1991) and increasing cosmological complexity. The spectrum of altered states of consciousness, ranging from 'light' euphoria to deeply hallucinatory conditions, was being divided up and socially allocated. Upper Paleolithic shamanism was developing through time.

In many instances, it seems that the more structured the social dimension, the more likely it is that the deeper altered states of consciousness will be regarded as dangerous (Douglas 1973:104). Certainly, it is hard to imagine that penetration of the deep Upper Paleolithic caves could have been regarded as anything but perilous. Increasing the physical danger and discomfort further restricted access to the ultimate religious experience and the power that this experience bestowed. At the same time, the markedly restricted movement that some of the smaller decorated areas (*e.g.*, the

tunnel at Le Gabillou, the Chamber of Felines in Lascaux and the Chimney in Bernifal) permit suggests increasing restrictions on the ways in which ideologically defined altered states of consciousness might be experienced and a concomitant codification of beliefs concerning such states. Access to certain altered states, and hence to certain kinds of knowledge, was being restricted. Altered states were being appropriated, defined, and differentially allocated in attempts to reproduce and to transform relations of power (Lewis-Williams 1995c).

The essential historicity of this process explains why the making of shamanic rock art was not a universal practice, despite the universality of shamanic mental imagery. In southern Africa, for instance, some shamanic San communities made rock paintings and engravings, while others, such as those living in the Kalahari Desert, did not. There are, of course, few rock surfaces in the flat, sandy Kalahari on which rock art could be made, but the shamanic functioning of the San communities that live there does not, even today, seem to be impaired by an absence of image-making. The experiences of altered states of consciousness are, in fact, a necessary but not a sufficient condition for the making of shamanic art. Those experiences and their associated mental imagery constitute a resource that, under certain historically specific social circumstances can be exploited. As Bourguignon (1974:234) pointed out, visions acquired in altered states of consciousness are "raw materials for potential cultural utilization." The need to reify on rock these experiences and visions is not ineluctable: there is no neuropsychological imperative. In some communities, shamans weave their experiences into tales, songs and mythology; sometimes they also depict them on perishable materials, such as skin drum coverings and clothing (*e.g.*, Brodzky *et al.* 1977). Each instance of the making of rock art is therefore a specific historical question. Neuropsychological research into altered states of consciousness clarifies the substance and nature of a resource, not the social conditions under which that resource is accessed. Why people living at the beginning of the west European Upper Paleolithic began to make rock art is a question that still needs to be addressed. The reasons why they continued to make rock art throughout the Upper Paleolithic may well have changed as historical circumstances changed.

The historical specificity of each Upper Paleolithic image and the kind of shamanic context in which it was made point to an important mechanism for change in the cosmological, social, religious and iconographic frameworks of the period. Each painted or engraved image should be seen as an individual or group intervention. Human agency (see, for example, Bourdieu 1977; Giddens 1984; Johnson 1989), not impersonal, hardwired cognitive structures, accounts for change. As I have pointed out, altered states of consciousness are a resource on which actors can draw as they negotiate their social and political statuses. Unfortunately, it is a resource that is usually omitted from archaeological accounts of change, perhaps because of current values in Western academia and a (one hopes implacable) resolve to exclude 'New Age science' with which "mystical" things like altered states are associated. The seriousness of this omission is highlighted by those studies that do consider altered states. For instance, in an account of change in the iconography of southern African rock art, Dowson (1994) argues that different types of images were manipulated by politically emergent shamans to negotiate new statuses. Citing Barth (1987), Riches (1994) makes a similar point. Religious specialists among the Mountain Ok of New Guinea effect incremental shifts in the connotations of particular symbols. In Riches' apt phrase, the shaman is a "cosmology maker." I argue that, as individual Upper Paleolithic shamans pursued their personal and group interests, the cosmology that they created and modified (partly by their art) both constrained and enabled social change.

A Way Ahead

As I pointed out at the beginning of this chapter, there is today a deep and justifiable suspicion of all-encompassing explanations for Upper Paleolithic art – those that cover all the different forms of art that people made during the entire 20,000 year span of the period. In demonstrating the explanatory power of the shamanic hypothesis, I have therefore considered only the parietal cave art of western Europe. I have, moreover, emphasized spatial and temporal diversity.

There are, of course, unresolved problems, and the explanation and its implications need to be fully worked out. But that is true of the most abundantly confirmed and widely accepted hypotheses; evolutionary theory is a case in point. One does not have to explain everything in order to explain something.

I simply argue that no other explanation currently before researchers has equal evidential support. Nor does any other explanation have comparable explanatory power and potential; the shamanic explanation resolves some of the most intractable problems of Upper Paleolithic research in a parsimonious way. In doing so, it creates an entirely new way of categorizing Upper Paleolithic images and addressing their changing deployment within the caves. Moreover, it places all Upper Paleolithic activity, whether economic, social or ritual, within an evolving cosmology.

By intertwining diverse empirical data, multiple ethnographic analogies with strong relations of relevance, and the results of neuropsychological research on altered states of consciousness, the approach that I advocate breaks out of the current impasse created by the collapse of earlier explanations and by a tendency to think that new data, by themselves, will ultimately provide explanations. The despair of ever understanding at least something about Upper Paleolithic art that characterizes much writing on the period is unjustified.

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Beyond Art and Between the Caves: Thinking About Context in the Interpretive Process

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It is obvious that the study of early art has been changing. I am acutely aware of this primarily because I have been trying to finish a book on the topic of European Paleolithic art for the past ten years. To take this long to complete the book has been both a good and problematic time lag. While the project began as a summary of the extant interpretations for the imagery (*cf.* Conkey 1987), it has shifted into a study of the interpretive histories and processes. The shifts in our own intellectual, social, and political contexts since the early 1980's – such as changes in art history, in the anthropology of art, the challenges to empiricism and the "interpretive turn" in anthropology and archaeology, even the mobilization of the field of "rock art research," to say nothing of our own more self-reflexive research contexts – have necessarily impacted upon my project. In this final chapter to this volume of *Beyond Art*, I will consider some of the issues that have emerged for me in completing this book primarily because these are some of the very same issues that are implicated by many of the papers in this volume. In particular, I want to take up the issue of "context" because of its role in interpretation.

I know that I have been seduced by some of the ongoing intellectual history of this field; I have become as interested in the constituting contexts (after Gero 1996) for the research as in the contexts of the prehistoric imagery. It has become very clear to me that what an analyst thinks about this term – "context" – before or as they work makes a distinct and specific impact on their interpretations; that the so-called "constituting contexts" of how one does research are crucial; and that certain accounts for the imagery readily follow from the conceptual referents of "context." "Context" and "interpretation" then are inextricably entangled. To understand and to assess the interpretations is directly related to the conceptual referents of context – that is, what do people mean by "context" ?

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There have been three proximate motivations for me to take up a consideration of the concept of "context":

1) because I have had some of my own notions of this taken-for-granted concept jolted by some perceptive comments by David Lewis-Williams. To summarize only briefly at this point, he reminds us that contexts are not inherent but constructed; "contexts are made out of contexts" (Lewis-Williams 1990:133).

2) because *Homo sapiens sapiens* (anatomically-modern humans) now appear to have established themselves outside of Europe a considerable time before the appearance there of preserved Upper Paleolithic imagery at some 32,000 years ago, and because – as many papers in this volume discuss – there is increasing support for image-making or at least 'marking' at comparably early dates elsewhere (in southern Africa and Australia, at least). Thus, the Upper Paleolithic imagery of Eurasia is liberated from what have been persistent, almost "vitalistic" concepts of "context" in which the art "happens" with modern humans, and the European materials are the *origins* of art. We are now at the point in the history of research where we decouple the imagery from grand vitalistic and evolutionary schemes for the imagery, which can now be fruitfully approached as local, historical phenomena. While these phenomena may be linked to more macroprocesses (for one account, see Davidson, this volume), nevertheless, the specific forms, shapes, raw materials, and transformations through time and space are not likely to be explained by such processes. This has been a crucial liberation in that it has undermined the prevalent tendency to spatialize time (*cf.* Fabian 1983), which has presented the Upper Paleolithic as synonymous with the Eurasian archaeological record; and

3) because I find myself pursuing a research project that is intended to grapple with what I have constructed to be one "context" for the making and use of materials and images, specifically during the Magdalenian period of the French Midi-Pyrénées. Thus, I must, if I can, turn my critical eye on my own research concepts as well as on those of others.

This chapter then, will first consider some connotations of "context" in the study of Upper Paleolithic imagery, then consider this idea of "constituting contexts," and lastly turn to the particular research project as an example of one kind of contextual analysis of/for the imagery as social practice.

Connotations of Context

As Lewis-Williams suggests in his chapter, we are in the so-called post-Leroi-Gourhan era of interpretation, at least in regard to interpreting the imagery of the late Pleistocene of Eurasia. To Lewis-Williams, this involves the idea that contemporary researchers, especially those in the European intellectual tradition, have retreated from the somewhat grand and inclusive interpretations, such as Leroi-Gourhan's structuralist/mythogram account (*e.g.*, Leroi-Gourhan 1965, 1982; Conkey 1989) for the making and placing of specific images in the caves. There are many important legacies both of the detailed empirical work that Leroi-Gourhan did, and of the theoretical implications embedded in his publications, which drew as much from the thinking of Laming-Emperaire and Raphael as from Levi-Straussian structuralism (Chesney 1993; Conkey 1992a, in press; Delporte 1990). While Leroi-Gourhan's important work undermined the idea of painting/image making as just a "mode of cognition," it had the problem of then defining the meaning of the sign (taken in the semiotic sense, whatever image or image-sets) "entirely by formal means ... within an

enclosed system" (Bryson 1983: xii). This can be seen most baldly in the formulae he proposes for the various panels or figure groups in Lascaux (in Arl. Leroi-Gourhan & Allain 1979:348). What was lacking, of course, is any grappling with "how signs [again , in the semiotic sense of signs] interact with the world *outside* of their internal system" (Bryson 1983:xii). Image making is "in constant touch with signifying forces outside of (it), forces that cannot be accounted for by 'structuralist' explanations" (after Bryson 1983: xii-xiii, who is critiquing not Leroi-Gourhan, but certain approaches and assumptions in the field of art history).

While "contextualist" is a term that would not be used to describe a structuralist account such as that of Leroi-Gourhan, which held sway for many decades in the study of the European cave art, the structuralist account is, however, at one scale, "contextual" in that it depends upon inferring the relationships among component parts of the system. In the case of Leroi-Gourhan's study of the topographic placements of different images (*e.g.*, bison, horse, hand imprint), it did matter that a bison was in a specific locale and/or in some sort of "association" with another particular image. In contrast to this kind of context, many anthropologically trained archaeologists of early art are likely to think first of "context" as the social group(s) within which the imagery was made. What this illustrates is that the consideration of context can be at many levels, or multiscalar. While each researcher may have their preferred scale or analytical level, it will no doubt be from the dialectics – from playing off one level against another – that we may find our most fertile interpretive terrain. Of course, we must be explicit about the level of context at which we are working, and this should structure the level of interpretive reference: an analysis of the associations of geometric designs on specific decorated objects tells us about one of the most limited levels of context, and – without the appropriate linking arguments – cannot be used to imply higher or more inclusive orders of context, such as social groups or the work of an individual maker.

Perhaps the most obvious body of work that has gone on in the realm of one kind of context for the study of ancient "art" and image making has been under the rubric of "the archaeology of decorated caves"; in fact, since so much of this has been spearheaded by French researchers, it could be most appropriately called, *L'Archéologie des Grottes Ornées*. Within this emergent and energetic field there have been basically two kinds of studies: 1) the archaeology of the images, usually *within* a given cave: footprints, hearths, traces of the most minute prehistoric activities; and 2) the studies of the production and reproduction of the images themselves – the pigments used, the engraving tools, *etc.* – that imply or evoke aspects of productive contexts, such as grinding pigments (see Clottes 1993; this volume; and Clottes *et al.* 1990). Just within the French Pyrénées, the work of Jean Clottes and colleagues has brought to light fascinating aspects of this kind of site-level analysis. At Fontanet, there are the hand prints, the "drawing" on the cave floor next to the footprint of a covered foot, and there are reindeer antler "markings"; in the Reseau Clastres, there are the stalactites broken off, presumably by ancient visitors to the cave, as well as some footprints. In some caves there are pigments on the floor, or implements, such as the bone "spatula" at Montespan used to sculpt the bear of clay.

In other caves, a combination of archaeological evidence and experimental work is suggestive about different kinds of "visits," such as at Pech-Merle, where Lorblanchet (1980) has replicated the so-called Black Frieze to suggest that it could have been done quickly (in less than an hour) and by one individual, which he uses in combination with fragmentary pollen evidence to suggest that this cave area was only visited *in*frequently and was not the "sanctuary of the masses" that Breuil once sug-

gested. What is compelling about this kind of work is that the researchers are often using several lines of converging evidence when any one line of evidence alone is not strong enough to support an interpretation.

However, as Clottes (1993, personal communication) has pointed out, among most European (and especially French, see also GRAPP 1993) researchers working with "Paleolithic art," the notion of "context" is associated primarily with studies like these: *of and within specific caves*, more so than than in terms of sociopolitical formations, or the social relations of production (for some European exceptions, see Gonzalez-Morales 1991, this volume; Criado & Penedo 1989; for a consistent attempt to frame Paleolithic imagery in quite wide and inclusive social contexts, see Gamble 1982, 1991). Many of these researchers who favor the delimited, within-cave approaches tend to hold that the image making is somehow (but unspecifiably) "religious" (Delporte, personal communication), and the kind of more explicitly theorized "context" that is so seductive for Anglo-American anthropologists and/or Marxist archaeologists is not central to (nor even very knowable, epistemologically, in) their research agendas. These latter do include continued – and quite valiant and sophisticated – work to render the image making comprehensible in structuralist and semiotic terms (Sauvet 1988; Sauvet & Wlodarczyk 1992); and the increasingly sophisticated analyses of the forensic sort, such as inferring pigment mixes and techniques of "painting"; considerations of the *chaine opératoire* in the manufacture of forms, shapes, and decorated objects; and consistently inspired work directed at chronological refinements and spatial relationships.

If one were to begin to compile a kind of "typology" of the different kinds of "context" that different researchers (using examples here from the European Paleolithic) have pursued, it might start out like this:

1. Immediate and proximal contexts of imagery

1a. internal analysis: the close inspection of images on the walls or bone/antler in association with each other or with attributes of the medium and/or the very gestures that brought a 'mark' into existence in the first place (*e.g.*, d'Errico 1989, 1992; see Marshack, this volume), or close inspection of figures associated within a cave (Leroi-Gourhan 1958, 1966)

1b. site-level: the use(s) of a cave or shelter site, which includes studies of the nature of the "visits" related to imagery pigments, scaffolding (Lascaux), footprints, "snacks," a bone stuck here or there into the cave floor, or actual occupation (*e.g.*, Enlène, Gazel, La Vache, Fontanet); also, tracking these "uses" through time (see Clottes, this volume).

2. The occurrence of imagery as spatial 'marks'; both decorated caves and deposits of "portable art" (engraved/carved bone/antler) in certain sites (and not others) may be considered as 'marked' and 'marking' features of the cultural landscape, right into the present (*e.g.*, Bahn 1978; Conkey 1980, 1992b; Jochim 1983)

3. The relationships among and between image-sets: such as the stylistic contexts (when images can be 'related' stylistically) or the contexts of form and materials (see White, this volume, p. 97). In certain "sets" of imagery – such as the *contours découpés* (Bellier 1984), the female figurines (Gamble 1982), or the animal-ended spear-throwers (Cattelain 1980) – that appear distributed differentially across the landscape but suggest "connections" and formal similarities, these could be approached as "stylistic contexts" (see Davis 1990).

To advocate that we vigorously pursue the study of the context(s) of Paleolithic (or any other prehistoric/ethnographic) imagery is simultaneously banal – of course we are interested in context! – and deeply philosophical and complicated. "Context"

is one of those pervasive taken-for-granted notions, but it is only rarely agreed upon, especially when it comes to what the appropriate or relevant contexts for interpretation are. In his recent review of Pager's monumental study of the Brandberg rock art, Lewis-Williams (1990) includes a most succinct and crucial insistence on the fact that contexts are not inherent, but constructed; a "context" is a theoretical assumption, and "contexts are made out of contexts":

> All contexts are assemblages of selected features; they are value-laden constructs made by archaeologists acting in specific social circumstances. It is (of course) the archaeologists who decide which features of the past shall be deemed "the context of art" (Lewis-Williams 1990:133).

As noted above, there are many different kinds of context that are often at different scales of analysis and interpretation: In looking at the relations between and among incisions on an engraved bone or plaquette, Marshack's "internal context" is different from the contextual understandings of bone pieces stuck in the floors and crevices of some decorated caves – a kind of "proximate context" – in the French Pyrénées. And it is yet another kind of context to infer a group of at least four individuals to have constructed the purported scaffolding for painting at Lascaux, and an even other kind of context to infer that by late Upper Paleolithic times, there were select individuals who were somehow "authorized" – due to any number of social, cultural and/or psychological factors – by a wider social group to not only engage in behaviors involving altered states of consciousness but also to engage in the transferrence of experiences into material or visual forms (an argument that Lewis-Williams is, in effect, making; this volume), or – as Soffer suggests (this volume) – that the social situation in later Upper Paleolithic central European sites suggests there were certain specialists who could decode an increasingly schematized visual repertoire. What one then takes to be the relevant evidence for each of these (and many other kinds of) "contexts" will vary, and it is not unusual for each analyst to be a strong advocate for "their" kind of context.

Of course, what we need are many levels and many kinds of contexts. The more formal and proximate contexts listed above about marks and individual caves are one part – but a crucial part – of the engagement with the wider social formations within which imagery was made, caves were used, and material meanings were generated and transformed. What we need as much is the critical assessment of what we assume about context, and precisely how we construct the contexts we prefer, the contexts we pursue, and the contexts that we endorse or dismiss.

Constituting Contexts

Practices of Research

One often overlooked "context" is the notion of "constituting contexts," which is often discussed in the literature of the sociology of science and has been recently elaborated by Joan Gero (1996) in her analysis of archaeological excavation practices. Two aspects to this notion of "constituting contexts" are relevant here: 1) practices of research, and 2) the entanglements of our own *modes of thought* with those (modes of thought) we seek to interpret or represent. I want to draw heavily from Gero's account here for I think there are important implications for the entanglement of "context" and "interpretation."

> Our knowledge of the past is entrenched in the everyday unquestioned practices, the accepted use of (certain) specific instruments, and the carefully inculcated technical abilities [such as tracing rock art imagery] that we teach and expect of practitioners, and that we build into, and count on, as the unquestioned features and context of doing archaeology (Gero 1996).

These, she reminds us, have become the "right" thing(s) to do; they proceed without question and thus " they constitute their own kind of rationality." Gero argues that in asking – as we have in recent years (see Tomásková, this volume) – "how is archaeological knowledge related to the cultural politics in which such knowledge is accumulated?" that we have "taken a false turn." "We have looked for a context apart from and external to the knowledge itself and have tried to see how that context" – such as the interest in cybernetics and systems theory approaches in the 1960's, the 1970's focus on population issues and problems, and the rise of business metaphors – "acted upon practitioners of (archaeological) science and upon data" (Gero 1996). What she suggests is that it is not so much the seemingly external cultural politics or social movements that are primarily structuring our production of knowledge, but it is archaeological practices themselves (that) "constitute a context of rational accountability": They create, reinforce, and replicate our own kind of rationality. That is, archaeological practices – how it is we "do" our archaeology – are themselves a constituting context. We are, she points out – in our interactive ways – "each others' context." In our symposia, for example, we are anticipating, speaking to, reacting to, and diverting or reinforcing the views, aims, and opinions of each other. The volume of papers here is as much a product of this interactive context as it is some "objective" presentation of the state-of-the-art. It is not, then, just ethnographers who must confront and deal with the intersubjective nature of their enterprise. There are two (at least) directions to take this observation.

First, I find it somewhat suggestive that the *routines* of discovery and exploration – especially the "original" and pre-1950's ones – of much European Paleolithic "cave art" are reproduced – often quite directly, in the interpretive scenarios *for* the "art." These are most obvious in artists' reconstructions that are usually somehow (even if through passive acceptance) sanctioned by archaeologists, if not usually drawn by them. For example, many of the early caves were discovered (or immediately "authenticated") by a discovery/exploration party of a small select group of men often led by a religious specialist (*e.g.*, Breuil). It is not surprising to see many of these means of encounter, exploration and discovery replicated in the visual interpretations for the imagery (Figure 1, compare the 1940 photograph of M. Ravidat with his torch exploring the cave of Lascaux with the 1986 drawing of the "shaman"/religious leader in Lascaux). In Figure 2, the expressions on the faces of those (men) who are encountering the clay bison at Le Tuc d' Audoubert are unambiguously expressions of awe, which was itself, understandably in 1912, one of the characteristic expressions of the Begouen brothers, their father and the Abbé Breuil upon their discovery (Begouen & Breuil 1958). Of course, Breuil and other priests were supported by society; they had both the time and funds where few others did. Yes, as Lewis-Williams has suggested (personal communication), priests were motivated to be among the first discoverers, to perhaps "control" the discoveries, where were, after al to them about the "origins of religion."

While there is indeed some tantalizing evidence for a kind of scaffolding at Lascaux, the routing of the Abbé Glory in tracing the (relatively unknown and unappreciated but abundant) engravings in Lascaux – on an elaborate scaffolding (Figure 3a) –

FIGURE 1a. M. Ravidat shows the paintings at Lascaux with the aid of his carbon lamp in 1940 (Leroi-Gourhan and Allain 1979:54, Figure 35)

is replicated in the artists' reconstructions for "comment on fait Lascaux" (Figure 3b): how they made the Lascaux imagery.

The absence of women as image makers in both artists' reconstructions and in the discussions about the making and using of imagery has recently been noted (Mack 1992; Russell 1987, 1992; Gifford-Gonzalez 1993; Conkey 1992c) (but see Figure 4 for two of the rare exceptions). And despite the fact that, for example, Annette Laming *did* join the cave exploring and documenting group of Leroi-Gourhan, Vertut and Brezillon (all men) in the 1950's (Laming-Emperaire 1962), there are almost never women in the photos of the archaeological discoverers or students of imagery. This absence of a female presence in the archaeological practices and in the production of the imagery is an uncanny parallelism that cannot merely be referable to the prevailing generalized androcentrisms of the last century.

As well, the constituting contexts of how (Paleolithic) imagery is made are patently right out of 19th century easel painting, which was then, after all, the paramount definition of "art." Compare the woodcut published in 1870 (Figure 5a) – *before* the 1879 discovery of the first parietal art at Altamira – that elevates the decorated stone plaque as if it were itself on an easel, with any number of artists' reconstructions for the cave wall image-making (Figure 5b). And it is a much longer discussion and

FIGURE 1b "Against the backdrop of the painted cave [wall at Lascaux] a clan leader imparts the oral tradition of his people .... 'illustrations without books'" (Pfeiffer 1986:84-85; drawing by Lloyd Townsend; reprinted with permission). Note that this "clan leader" is standing more or less in the same location in Lascaux as is Ravidat (Figure 1a) with his torch. It is also of interest but problematic that around the edge of this drawing is a selection of portable art items, which derive from archaeological sites from central Europe to France, and date between 12-20,000 years ago, thus collapsing regional and temporal variations into a singe "Paleolithic art" (see Tomaskovà, this volume).

analysis to show how the constituting contexts for the initial (and continuing) interpretation of female imagery are embedded in such issues as the 19th and early 20th century notion of the artist as male with female as the subject (Garb 1993) and the 19th century revaluing of the "erotic ideal" to be female (replacing the male) (Conkey 1992c, 1997; Mack 1992; Solomon-Godeau 1997).

FIGURE 2. Three or four men "in awe" of the clay bison at the end of Le Tuc d'Audoubert (Ariège, France) Drawing from *Lascaux et son Temps* by Véronique Ageorges and Henri de Saint-Blanquat (1989)

We must seek out the ways in which we reproduce the routines of exploration and research into the interpretive frames, but this is not to expose ourselves as somehow fraudulent or merely pawns within cultural contexts. It is much more complicated than that. First, as Gero argues, our rationalizations for our interpretations are as much

FIGURE 3a. The use of scaffolding by the Abbé Glory to reach the figures on the ceiling in order to trace them, an archaeological "routine" of rock art research (Leroi-Gourhan & Allain 1979:219)

product of our own immediate archaeological routines and practices as of some wider generalized cultural "forces" or preferences. Second, we ourselves are most familiar with these disciplinary practices and should thus be most informed on how they work and why. Third, while most of the audiences for the study of "early art" invite (or demand) attention to the interpretations of and for the imagery – "but what does it *mean*?" – because these do not exist independently from the practitioners and the structuring contexts within which we/they work, any consideration of interpretations must take such practices into account in direct relation to the interpretive "results."

The Entanglement of Modes of Thought

Furthermore, just as our practices, our routines of exploration, discovery and reporting, are never separate from interpretive assumptions and from our interpretive projections, we cannot claim that we can infer, discuss, or describe the modes of

FIGURE 3b. An artist's reconstruction of the scaffolding inferred (Arl. Leroi-Gourhan 1982) for painting in Lascaux (from Ageorges & Saint-Blanquat 1989). The label for this illustration is "How they made Lascaux."

thought of others as if they were somehow "out there," separate from modes of thought *in* which we participate, *to* which we subscribe, and *through* which we inscribe "their" modes of thought . We all readily succumb to this, to inscribing "their" modes of thought through those of our own. As a brief illustration of this point, we can look at the case of André Leroi-Gourhan and the legacy of "anthropological humanism."

FIGURE 4a. One of the very rare pictorial artist's reconstructions for Paleolithic cave art that features a woman as an active image-maker (as commissioned by M. Conkey for *Science Year 1987*) (Conkey 1988)

No one can challenge the fact that the publications of Leroi-Gourhan, beginning in the late 1950's (*e.g.*, 1958) forever changed and affected the way we think about Paleolithic art, especially in Europe (*e.g.*, Audouze & Schnapp 1992; BSPF 1987). As one tries to trace out the conceptual crucible within which Leroi-Gourhan's ideas and interpretive preferences took shape, some interesting influences and intellectual relationships can be noted. For example, it is the case that Leroi-Gourhan and Claude Levi-Strauss were the two assistant directors to Rivet, the director of the newly-established Musée de l'Homme. In the mid-1930's, coincident with this new museum, had emerged a cluster of philosophical ideas that – along with the museum itself – was to celebrate 'man': The museum itself was to be a monumental unification of 'humanity' under one roof (Clifford 1988:138). In describing this intellectual and cultural movement, Clifford notes that:

> "anthropological humanism begins with the different and renders it – through naming, classifying, describing, interpreting – comprehensible. It familiarizes" (1988:145).

For most of the scholars that Rivet assembled at the new Musée – *e.g.*, L. Dumont, M. Griaule, M. Leenhardt, Leroi-Gourhan – the "connection," Clifford argues, "between art and ethnography was crucial" (1988:138). Their vision of humanism was an expanded view, forcing an opening out of what had been very local conceptions of human nature. Art was a "universal essence" (Clifford 1988:144). From this, it is not surprising that Leroi-Gourhan took up the idea of European Paleolithic art as one of (and equal to) the great artistic movements of the historical world, inseparable from a coherent religious system. His visions of and for the Paleolithic fit well within the lib-

FIGURE 4b. The other rare reconstruction of an active female in the process of "decorating caves." Note that here, with a barefoot, almost-hopping or perhaps dancing youth/child in the background, two assumed stereotypes are reinforced: a) that women are consistently associated with children; and b) that footprints in the caves are linked to youth dancing and initiation ceremonies (illustration by V. Ageorges in Ageorges & Saint-Blanquet 1989).

eral synthetic image of 'man' that (as Clifford has suggested) inspired and guided the creation of the Musée de l'Homme.

In describing her collaborative work with Leroi-Gourhan as she completed her thesis (in 1957) and drew Leroi-Gourhan into the analysis of the *content* of Paleolithic art, Annette Laming wrote of it as a "constructive period where we had the feeling of *seeing reborn before us a new and more coherent Paleolithic world* " (Laming-Emperaire 1962: 2, my translation and emphasis added). This view of Paleolithic peoples – as seen through their religion (Leroi-Gourhan 1964: *Les religions de la prèhistoire)* and their art (Leroi-Gourhan 1965: *Treasures of Prehistoric Art),* can be seen to have derived from and constituted a rubric of "complete humanity":

> "All people create, love, work, worship" (Clifford 1988:144).

The point of this brief foray into intellectual history is to remind us how entangled are our own modes of thought with those that we claim to be discovering. The legacy of this "universal humanism," especially in reference to the European Paleolithic art, is still with us. A poster for an exhibition in France on human evolution proclaims "Nous Tous Avons 400,000 Ans" (We are all 400,000 years old); the postage meter in the famous "capital of prehistory" in France, Les Eyzies, cancels stamps with the saying, "200,000 Ans de la Qualité de la Vie" (200,000 years of the high quality of life); a children's book on prehistory presents Paleolithic life and art as "Les grottes sont les eglises" (the caves are the churches); the Hewlett-Packard company advertises its

FIGURE 5a. Lithograph published by Figuer (1870) before the 'discovery' of Altamira (1879) and Pleistocene cave wall art in Europe. Note that the then-known portable art was imagined, in part, as "easel" image making.

FIGURE 5b. One of Z. Burian's (Augusta & Burian 1960) well-known reconstructions of Paleolithic life Note that the (male) artist (with male helpers) approaches his work in an easel-posture

own expertise with a drawing of presumed Paleolithic men, grouped together in a cave, making typical hand prints on the cave wall, and the ad caption reads: "Leaders have always known good advice."

But to admit the entanglement of *our* modes of thought within and for "their" modes of thought is not saying that we should give up and its not to say that it is all constructed. Yes, the viewer *is* an interpreter, and yes, interpretation changes as the work changes and thus we cannot claim final or absolute knowledge. Many of the core concepts that we invoke and depend upon (in our interpretive work with "early art") are not just cultural constructions, but are cultural concepts that have *changed* over time: "art," "symbolism," "meaning," "consciousness," to name but a few. Not only, for example, has the notion of "art" (and its handmaiden, "aesthetics") changed since the 18th century, but the concepts of and for it have been (and still are) contested (Murray 1991; see also, Tomásková, this volume).

Catherine Lutz (1992) has brilliantly elucidated how the particular genre of Euro-American "consciousness" and what constitutes mental life and thought entail a whole sweep of linked features that are regularly assumed and implicated in our many inquiries into the mental worlds of others, including those in prehistory. The linked features – which are not inherent in "consciousness" – include the notions of objectivity, control of attentional processes in the interest of solving technical problems, non-emotionality, linear thought, and rationality, among others (Lutz 1992:73). Few question, for example, that stone tool technologies and the linear production sequences that we infer for them should constitute relevant evidence for the evolution of human symbolic behavior or of consciousness (*e.g.*, Chase & Dibble 1987).

We thus need to "excavate" our own core concepts and the constitution of unquestioned background assumptions that set up evidential relations that, in turn, structure the selection of not just relevant data but what then constitutes relevant "context." But this is only to force a more informed and self-reflexive engagement with the interpretive process. By revealing ambiguities and uncertainties, or by revealing the entanglements of *our* modes of thought with those we "infer" for the past, we are not necessarily accusing views – such as those of Leroi-Gourhan or others of crucial importance to the field – as being fraudulent; we are only challenging the authority with which such views often are or have been held (Daston 1991).

Between the Caves: The Social Geography of Paleolithic Visual Culture

In this section, I want to suggest one line of contextual analysis for under-standing a relatively delimited set of image-making – what I am calling a "visual culture"- that characterizes the archaeological record of the late Pleistocene of what is today the Midi-Pyrénées region of southern France.

My own push into this arena of considering "context," has come in part from an attempt to put into practice some theoretical notions about the "social geography" (Conkey 1984, 1990) within which mobile populations of Late Pleistocene Europe were embedded. I believe it is plausible to think that the peoples who left what we call Magdalenian period sites in this region were peoples who experienced a mosaic of social formations and a more-or-less mobile life throughout this region (and beyond). Given that there are some dozens of cave sites with paintings and engravings (*e.g.*, Bedeilhac, Niaux, Les Trois Frères) and some hundreds of engraved bone, antler,

ivory and plaquettes, it is clear that at least some of these people were engaged with the production and reproduction of what appears to be a rich visual culture.

I have been inspired to probe into the "social geography" within which this took place by at least two separate influences. On the theoretical side, I take seriously that there is much to be gained from exploring "the referential contexts of social action" (Hodder 1982:16): why would the making of imagery have been meaningful and to whom, in what contexts? These are questions that are well considered in the chapters in this volume by Rosenfeld, Parkington and Manhire, and Lewis-Williams. The interpretive insights each offers derive from their being able to approximate some of the specific referential contexts of social action – territoriality (Rosenfeld), social and sexual relationships and statuses (Parkington and Manhire), and shamanism (Lewis-Williams).

On the side of research practice, I have been inspired by the widespread recognition within the field that, in this so-called post-Leroi-Gourhan era with more global and differential manifestations of early art, other emphases and approaches are called for. "There are no masters"; we "have moved away from inclusive accounts" (*cf.* GRAPP 1993; Clottes 1995).

Most simplistically, I am interested in what we can infer about the social relationships among the people who lived in what we identify as a certain region – the Midi-Pyrénées of France – who produced an admittedly distinctive Paleolithic "art" – on cave walls and on bone and antler. There is, taking these images and materials together, a justification for a regional approach: "L'art contribue puissamment á individualiser le Magdalénien des Pyrénées" (Clottes 1989:325). That is, the corpus of imagery from the Magdalenian period - some 14-11,000 years ago – can be characterized as somewhat distinctive, and it is the art forms that invite us to conceptualize the Magdalenian period of the Pyrénées as a culturally meaningful entity of some sort. For example, there are certain relatively abundant and widespread characteristic objects of portable art, such as the *decoupées* (or animal-head bone cutouts), although these are not only found in this region. Because there is a certain coherence to the images made, even within the wider recognizable manifestation that we call "Paleolithic art" in Eurasia, it is likely that those who made, used, and left behind these images were somehow participants in an "informing context" (Lewis-Williams 1991a), that is, an interactive, communicative, productive, and even cosmological context within which the practices and products of imagery were meaningful, which informed the art. How do we ever begin to access such contexts?

The research that is motivated by such questions is only beginning, but I present it here as an example of the kind of work that lies ahead of us in the task of interpreting the imagery that has taken hold of our attention. The intent of mentioning here this particular – and very much "in progress" (Conkey 1994, Conkey *et al.* 1995) – research project is to bring into this discussion of "context" what some of my own theoretical assumptions are about the possible informing contexts for the production of this visual culture we call "Paleolithic art." And it is crucial to consider assumptions in *all* approaches, no matter what the conceptual referent of "context" may be. This work, with its own informing background and constituting assumptions will lead towards certain kinds of "results": different from work informed otherwise.

And thus, we have embarked on a two-part study, each of which is quite traditional archaeology. However, I would like to think that it is traditional archaeology in the service of redefined interpretive goals. On the one hand, I have begun an ongoing stylistic type of analysis of the bone and antler imagery among and between sites, which I hope can lead to inferring a "stylistic geography". That is, I hope to be

able to use very precise notions of artifact production, stylistic treatments, and patterns of use of the engraved bone and antler that are often abundant in the cave sites, where such materials are often well preserved. Dobres (1995) has already shown that, for the unengraved bone/antler artifacts there are some distinctive patterns in the making, repair, or abandonment of artifacts, yet that, overall, there is a notable fluidity and flexibility in how such artifacts are made, repaired, and/or reused. She argues convincingly that this flexibility was engendered by relatively fluid social formations; that the social relations of production were more open than closed, more opportunistic than rigidly structured. It will be interesting, for example, to see if the imaged ones – with geometric and/or animal figures – are more rule-bound, made according to more productive constraints. Will there be notable stylistic "linkages" between certain locales/sites, such as one already assumes for the sites of Mas d'Azil and Enlène, and what can be inferred from this about the social formations within which image-making and using took place?

On the other hand, we have initiated a regional survey that is especially focused on understanding the distributions of late Paleolithic (especially, if possible, of Magdalenian, *ca.* 11,000-14,000 years ago) peoples within and across the landscape – especially focused on the Ariège region within which are located many important Pyrenean cave sites. And it is the cave sites that have yielded almost all of the preserved archaeological evidence to date. Before this survey began, no systematic survey for evidence of Paleolithic peoples in the region – that is, in open air locations – had been carried out, other than Simmonet's (1981) work on locating potential sources of flint raw materials for stone tools. What we have found to date is that, across the region, there are differential distributions of distinctly Upper Paleolithic stone tools; some locations have yielded a recurrent density that will lead to probable coring and testing for subsurface evidence. These "lithic landscapes" (after Prine 1996) are already suggestive of particular presences – on the plateau top above the decorated cave of Marsoulas; on the rise where one can look west towards the Marsoulas plateau and north towards the ridge of the Pré-Pyrénées rising above Ausseing and allow us to begin to "fill in" the heretofore vacant spaces "between the caves" and to provide a sense of the pathways and lines of sight that may have linked caves, materials, and people.

Given that these were mobile peoples, given that all our archaeological evidence derives from the cave sites in the region, given that there is no evidence for the year-round occupation of any cave sites, we have all at least conceptualized that people moved in and through the region. But our archaeological reconstructions and our interpretive imaginations have not included what is "between the caves." How was the landscape experienced, and in what ways were the landscapes imbued with all sorts of biographical and cultural significance? How might they have been a source of/for memory or sentiment (*e.g.*, Myers 1986)? This kind of a "geography of social action" looks at how people "used" the region, at the landscapes of "being in" and experiencing the late Paleolithic world at this regional scale. How might these movements and memories been part of the "informing contexts" within which a rich and abundant material and visual culture was produced? The two "geographies" that I envision we might infer are intended, in analysis, to be played off, dialectically, against each other: How do the patterns of each inflect upon the other? Where are the resonances, the dissonances?

The "social geography" approach is based on a theoretical idea about what human symbolic behavior – such as making images, pictures, signs or whatever – is about. Rather than taking human consciousness (or, even *altered* states of consciousness),

symbolism, and meaning-making to be reified properties of the mind, I take symbolic behavior and meaning-making to be an emergent property in and of social action. Thus, I have deliberately chosen to problematize the nature and dynamics of social formations and social life during the Magdalenian in the Midi-Pyrénées, as expressed through, experienced, and constituted by the liaisons and movements through and within a regional landscape. Here indeed, there *are* differential patternings in the engagement with material culture (*e.g.*, Clottes 1989; Dobres 1995); there is little redundancy from site to site (Conkey 1993). Each cave site has yielded its own relatively unique combination of imagery and media, yet there is something characteristically "Pyrenean" about the Magdalenian materials.

Although outside the immediate scope of my research, this is a region for which diverse archaeological evidence might well be marshaled to *begin* to make the requisite case for the kinds of sociopolitical contexts that Lewis-Williams (this volume and elsewhere, *e.g.*, 1982, 1991b) has invoked as those within which shamans might have taken over the control and production of arcane knowledge, which included certain image-making in, or left in, certain caves. In this volume, Lewis-Williams does note that despite the rather inclusive appeal of the art-as-shamanistic interpretation that he has been developing, nonetheless, this must be demonstrated within specific and historicized instances, as he suggests for the site of Gabillou (Dordogne, France).

The interpretation of a shamanistic art for the European Upper Paleolithic cannot be sustained without wedding the analysis of the images *per se* and their immediate contexts of cave wall shapes and galleries (through which one wriggles) to the sociopolitical contexts and social formations. These can only be inferred archaeologically; that is, from information about sites, landscapes, movements, activities, technologies, group dynamics, and other patternings. This is why what the inquiry is today is one that is "beyond art." As Lewis-Williams himself has argued, one must work towards specifying the "informing context" of the imagery, which "specifies the social relations and the cognitive processes that informed the art and linked it to broader [San] social formations" (Lewis-Williams 1990:133; 1991a). But even where there is more information on the "informing contexts," such as in the pioneering work on the shamanism of southern African rock art, the interpretation is still being debated and refined (Parkington & Manhire, this volume; Manhire *et al.* 1985; Solomon 1992).

Assessing Context

While proclaiming we must then be more "contextual" and pay more attention to "it" (*i.e.*, context), there is possible delusion here (see Davis 1989). While it is easy to end our evaluations and critiques of past research attempts and shortcomings with a coda of "contextualize, contextualize, contextualize," this could be somewhat of a false promise. Is this a false, thinly-veiled positivist kind of promise that if only we could "find" context (s), we'd "have" meanings; we would "find" meanings that context would (somehow) reveal to us?

Of course, we – as in art history – can justify the call for (self-critical) contexts on the grounds that it is a suitable response to the ahistorical or noncontextualizing approaches of structuralism or other homogenizing or utopian accounts that have prevailed in the interpretation of Paleolithic art. Note Rosenfeld's critique (this volume) of how normative descriptions of motifs and images have perhaps precluded the interpretive potential of rock art. In art history, the call for contexts is justified as a valid response to the formalistic connoisseurship (and its ahistorical procedures) that has

dominated that field (Davis 1989:25). To a great extent, the breathless celebration that has long characterized many approaches to Paleolithic cave art, for example, is but another variant of this connoisseurship (Conkey 1997).

While I think it is an extremely valid, if not crucial, question to ask for the European Paleolithic imagery, "What were people doing in the caves?", one must ask is the cave, as site, *the* unquestioned, bounded entity for analysis and interpretive frame? Further, as Ucko (1992) has argued, and as a few really detailed studies of individual caves (*e.g.*, Le Magdeleine [Rouzaud *et al.* 1989]; Villars [Delluc & Delluc 1974]; Aldène [Vialou 1979)]) have shown, just interpreting the "use" and "use-life" of a cave is more complex than ever imagined. While the cave-as-context, for example, should provide additional lines of evidence in our quest for understanding, what we must avoid is the false hope that once we define context, then meaning will follow.

Thus, the focus on context and thus, a view of "art" as a social activity and practice, doesn't necessarily move away from the view that these are objects or images with certain (*e.g.*, aesthetic or technological) qualities or a certain content. But it is always easy to lean too far, especially for me, as an anthropologist who is trained to and almost instinctively prefers to lean towards the social and cultural. There is the potential problem of considering "art" as primarily or *only* as the trace or symptom of those (social) facts" (Davis 1990), neglecting serious consideration of such things as the aesthetic or spiritual experiences. Perhaps this is what Alpers (in Schoch 1988) meant in differentiating between the *making* of pictures and the *circumstances* of pictures, or between those images that are more or less profitably studied in terms of the culture around them.

This differentiation has been, of course, a long-standing tension in the study of images and "art," with two 'camp': those who study "art" as object, as aesthetic production and those who study it as social practice, as symbolic production. This is why, when visiting painted caves in France, a contemporary painter once demanded of me, and with exasperation, "Was the imagery really only about the differing strategies?" that I was presenting to him as the various explanations for Upper Paleolithic art: information exchange, population refugia, adaptive signalling of the social order. Of course, what is needed is a dialogue, not a choosing of sides, an either/or. The making of pictures is not outside the realm of the circumstances of picture; we may feel an analytical need for separation but one is not possible without the other.

If there is any one (albeit disappointing) thing to be said about the study of "meaning," especially in regard to Paleolithic imagery, it is *not* that if we can only circumscribe context, the meaning(s) will emerge or be 'revealed.' As Sperber wrote, meaning is not a useful "descriptive category," but a "misleading metaphor": "It is not possible to circumscribe the notion of meaning in such a way that it could still apply to the relationship between symbols and their interpretation" (Sperber 1975: 11, 33). Although the pursuit of contexts will not "reveal" meaning, which has no stable identity anyway, we have little to lose from not probing into varying contextual circumstances but also expanding our ideas as to what we mean by the concept of "context(s)."

Closing Thoughts

The idea of recognizing "context-as-cultural-construction" is not to abandon any hopes of understanding about the contexts and cultural frames within which meaning, consciousness, symbolism and so forth came into play in the lives of past peoples. By recognizing the role of culture *in* the construction of the experience of self, other, and

the world (after Lutz 1992), I think we will actually find that that which we can be talking about is much wider and deeper than what we have done so far.

By taking the "interpretive turn" in the human sciences – an explicit retreat from positivist science and from the false hope that the human sciences will someday reach "an age of paradigm" as in the natural sciences – our attention, to paraphrase Rabinow and Sullivan (1987: 5-7), is refocused on "the concrete varieties of cultural meaning," where we recognize that our baseline practices in the human sciences are socially constituted actions that are intersubjective, in which one "denies and overcomes the almost *de rigeur* opposition of subjectivity and objectivity." What the "interpretive turn" means for an archaeology of imagery is not that it is just another "methodological option among a growing number of investigative tools" (Rabinow & Sullivan 1987: 2). Rather, the interpretive turn is a process that has "the capacity to challenge the practices of knowing in our culture. Knowledge is not – despite the enthusiasm and persistence with which it has been taken to be – a 'technical project'." Rather is "inescapably practical and historically situated" (Rabinow & Sullivan 1987:2).

While we are all easily seduced into studying these ancient images and their makers in order to extract or "find" some mythical ideals, what we must do instead is take up ancient visual culture as a subject of engaged study in which we ourselves are reminded of our own historical specificity rather than loosing ourselves in mythical ideals (after Kampen 1993). If we can do this – with both empirical depth and imaginative power – I am convinced that we will learn something about the past and the present, and about the relation between the two.

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Index

Index

A

Abri Blanchard 98
Abri Castanet 98
Abri de la Souquette 98
Acheulian Industry 54
Ain Mallaha1 65
Altamira 30, 37, 46, 149, 193, 203, 270
AMS (accelerator mass spectrometry) dating, see archaeometry, methods 24
Amud 57
Anatolia, sites in 172
anatomically modern humans, see *Homo sapiens sapiens* 53
animals, depictions of 62, 65, 114, 129, 180, 190, 220, 226, 329
    carnivores 242
        felines 337
    herbivores 242
    See Also individual animals (aurochs, bison, etc.)
    related to subsistence patterns 191 - 192
anthropomorphic figurines, see also female images 107, 196
    Gravettian 107
    Grimaldi 114
    Levant 167
    raw materials 109
        relationship to object form 114
archaeometry, methods 19
    cation ratio method 21, 28, 39
    radiocarbon 19, 207
        14C AMS dating 24, 26, 28, 39, 45 - 46, 49, 138, 149
architectural art 251
Arene Candide (delle) 218
Arnhem Land 293, 295
art, concept of 125, 269 - 270, 281, 362
Aude-Hérault 206
Aurignacian Period 10, 53
    European 53, 95, 217
    Levantine 60
    personal ornaments 95, 167
aurochs, depictions of 68, 168, 222
Australia, art of 39, 136, 290
Azilian tradition 228

B

Balzi Rossi 218
bas-reliefs 207
beads 95, 254

basket-shaped 98, 107
ivory 96
stone 98
use in the Levant 166
Beçov 54
Bedeilhac 75, 359
Berekhat Ram 57
Bernifal 203
bison, depictions of 65
bracelets 248
Breuil, Henri 37, 203, 323, 345
Brno 249

C

Cafer Hoyuk 172
Cangyuan 39
Castillo 30, 329
Çatal Huyuk 161, 172
cation ratio method, see archaeometry, methods 28
caves, light levels in 205, 336
caves, topography of 203, 328, 333
Çayönü 172
ceramic objects 242
chaine operatoire 10, 94, 346
in fabrication of female scultpures 108
in fabrication of personal ornaments 95
Chalcolithic 161
Levant 165
Chatelperronian Period 53
Chauvet 20, 30, 149, 176, 336
age of images 149, 207
climatic stress 256
Coa Valley (Foz Coa) 21
Côa Valley, see petroglyphs 27
Comarque 329
Combarelles 203
context, concept of 128, 267, 279, 281, 343, 346, 359
Cosquer 20, 30, 39, 46, 150, 176, 206, 333
age of images 207
Cougnac 30, 44, 46

D

dei Cervi 224
Dell'Addaura 226
delle Veneri 218
demography of Late Pleistocene populations 256

designs used in cave paintings 42, 195, 208
See Also animals, depictions of
See Also female images
geometric signs 42, 93, 226, 326
claviforms 42, 326
geometric 327
Devil's Lair 138
Dolni Vestonice 240
Dolni Vestonice 265, 278

E

El Castillo 46
El Wad 75
eland, depictions of 302, 316
elephants, depictions of 317
En Gedi 179
Enlène 38, 210
engraving 31, 57, 142, 203
Australian 31
Franco-Cantabrian 208
Hayonim 77
Quneitra 57
entoptic phenomenal 76
Epigravettian Period 220
Epipaleolithic Period 70 - 71
Levant 161

F

female images 75, 108, 114, 144, 172, 179, 218, 254, 307
"Venus figurines" 108, 144, 196, 250, 254 - 255, 278
concept of femaleness 250
fertility symbols 93
pregnancy, depictions of 114, 117
Fontanet 38, 41, 206, 345
Font-de-Gaume 37, 203
Foz Côa, see petroglyphs 27
Franco-Cantabrian region, cave paintings of 5, 7, 12, 68, 176, 189, 220
Funerary art 240

G

Gabillou (Le) 334
Gagarino 245
Gargas 46, 203
Geißenklösterle 98

gender, role of 302
geopolitical considerations 272, 277
Giant Horse site 30
Gilgal 171
Giovanna 224
Golan Heights 54
Gravettian Period 10, 54, 204, 218
Central and Eastern Europe 240
Graziosi, Paolo 231
Grimaldi 109, 218

H

hallucination(s) 324
hand stencils 150, 207, 210, 212, 291, 296
Hayonim 60, 71, 166 - 167
Hayonim block 75, 84, 170, 178
notation 86
healing, depictions of 310
Homo sapiens sapiens 53, 175, 344
horse, depictions of the 62, 178, 220
humans, images of 194, 213, 222, 226, 231, 242, 303, 306, 308, 326
hunter-gatherer societies 289, 303, 322 - 323
hunting 195, 302, 316
hunting magic 223
implements 302, 307
scenes 306, 310

I

Ignat'evskaia 251
initiation scenes, depictions of 316 - 317
Isturitz 98, 208
ivory 100, 102, 105
See Also mammoth tusk
physical properties of 102

J

Jericho 171
Judd's Cavern 136

K

Kapovaia 251
Karain 67

Kebara 57, 178
Kharaneh 164
Khotylevo 245
Koonalda cave 136, 211
Kostenki-Avdeevo Culture 244, 275
Ksar 'Akil 178

L

Laming-Emperaire, Annette 204, 321
language 126, 151
Lascaux 2, 37, 337, 348
Laugerie-Haute 37
Laurie Creek 136
Le Reseau Clastres 38, 41
Leroi-Gourhan, Andre 6, 20, 45, 62, 94, 127, 196, 204, 321, 344, 354
Les Mallaetes 130
Les Trois-Freres 38, 65, 210
lighting, effects of cave 205, 211
lion, depictions of 222

M

Madeleine (La) 64
Magdalenian Period 12, 204, 210
    Cantabrian 190
Malakunanja 138
male images 307
mammoth tusks 100, 102, 105
mammoth, depictions of 64 - 65
Mandu Mandu 138
Marsoulas 203
Mas d'Avil 75
Mauss, Marcel 94
Mesolithic 190
Middle Paleolithic 57
minimum number of individuals (MNI) 192
Moravia 240, 274
    Pavlov Culture 240
mortuary practices 164
    Levant 164
Mousterian 95
Mouthe (La) 37, 203
Mungo, Lake 138
Mureybet 171, 173

N

Nahal Ein Gev 164
Nahal Hemar 165, 172, 179
Natufian tradition 71, 75, 79, 164, 168, 179
Nauwalabila 138
Neandertals 53
    Levantine 54
Neolithic 161
    Early 171
    iconography 171
    Levant 164
Netiv Hagdud 171
neuropsychology 325, 337
Neve David 164
Niaux 20, 30, 37, 42, 149, 203, 330, 359
    Salon Noir 38, 211
Nisula 27

O

Ohallo 164
Öküzini 67, 73
oxalate salts, use in dating 26, 29, 31
oxygen plasma oxidation 29

P

Paglicci 220
paints used in cave paintings 23, 37
    charcoal particles 23, 26, 47
    oil paint 41
    organic binders 23, 31, 37
        DNA content of 39
    paint analyses 39
paints used in cave paintngs
    organic binders 31
Parpalló 129, 133
Pavlov 240, 265
Pavlov Culture 275, 278
pebbles, painted 228, 230
personal ornamentation, see also beads 95, 140, 166
    methods of manufacture 102
    raw materials used in 98
        mammoth ivory 100
petroglyphs 21, 290
    Coa Valley 21, 23, 39
phallic images 75, 80 - 81, 171

plaquettes 129, 147, 359
Polesini 223
Predmosti 240
Prince (Grotte du) 109, 218

Q

Qafzeh 166
Quercy caves 38, 214

R

radiocarbon dating, see archaeometry, methods 19
red ocher 105
    use in the Levant 166
Réseau Clastres 206
rock art 127
    Australia 127, 136, 289, 295
    Cantabrian 190
    South Africa 301, 322
rock shelters 301
Russia (European) 244

S

Saint Jean de Verges 98
Salibiya 171
San ethnography 316, 322
    San 337
San(t) Gregori 130
seasonality, adaptations to 81
    Natufian 82
shamanism 321 - 323, 327, 334, 361
shamans 361
    depictions of 313
silica coverings of rock paintings 26
Skhul 166
subsistence, depictions of 310
Sungir' 244
Swabia 140
symbolism and symbolic behavior 161, 189, 194
symbols 127, 140, 142, 153

T

Taphonomy 142, 203
Tata 54
Tel Ramad 172
territoriality 289, 294, 297
trance(s), depictions of 310, 325
Treasure Cave 179
Trois Freres (Les) 359

U

Uluzzian 217
Upper Paleolithic 9, 14, 133, 136
    Australian 140
    Cantabrian 189
    iconography 75, 93
    Levant 161
    transition 57, 86
    western European 64, 125
Urkan er-Rubb 168

V

Vache (La) 38, 42
Vogelherd 53, 140

W

Wandjina art 292 - 293
Willendorf 265, 276, 278
Wunan 293

X

x-ray art 294

Y

Yarmukian culture 173

Z

Zagros 178
Zubialde 40

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